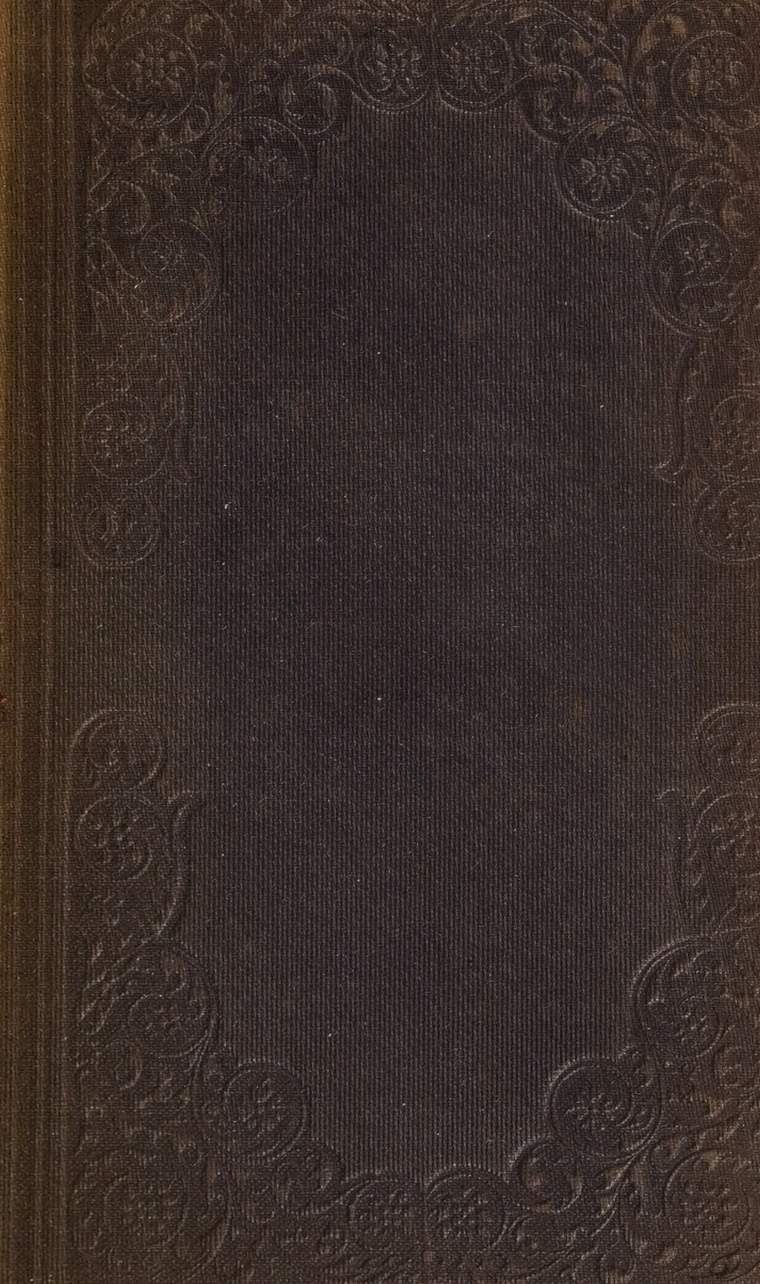

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THE

RETROSPECT OF MEDICINE:

BEING

A HALF-YEARLY JOURNAL,

CONTAINING A RETROSPECTIVE VIEW OF EVERY DISCOVERY AND PRACTICAL IMPROVEMENT IN THE MEDICAL SCIENCES.

EDITED BY

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ETC.

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A SYNOPSIS,

CONTAINING A SHORT ABSTRACT OF THE MOST PRACTICAL ARTICLES IN THE FOLLOWING PAGES: SHOWING, AT A GLANCE, THE MOST IMPORTANT INDICATIONS OF TREATMENT PUBLISHED BY DIFFERENT WRITERS WITHIN THE LAST HALF-YEAR. (ARRANGED ALPHABETICALLY.)

AFFECTIONS OF THE SYSTEM GENERALLY.

AGUE.—Quinine not only acts specifically in curing ague when present, but prevents the disease attacking the healthy man when in malarious districts. For this effect, give 4 grains of quinine, either alone or in one ounce of wine, twice-a-day, while the patient is exposed to malarious poisons, and continue the medicine for fourteen days after he has left the district. This is necessary, as the poison sometimes lingers in the system, and does not show itself for that period. (Dr. Bryson, p. 30.)

CANCROID TUBERCULOSIS.—Touch the ulcer with the acid nitrate of mercury weekly. If covered with a scab, pull this off before touching it. (Mr. H. W. Bubb, p. 39.)

DIPHTHERIA.—Many cases of diphtherite, seemingly the most trivial, prove unexpectedly fatal, and in these cases indications of impairment of the renal functions are constantly precursory of an unfavourable termination. Hence the necessity of, morning and evening, making an examination of the urine ; if albuminuria be present, the prognosis should be carefully guarded, though not necessarily fatal. (Dr. W. F. Wade, p. 23.)

The diphtheritic exudation depends on a parasitic fungus, the oïdium albicans, and in the treatment of the affection "antiseptics and parasiticides appear to be the most efficient remedies." Of these the tincture of the sesquichloride of iron (an antiseptic) and the hydrochlorate of potass are the most efficient. The latter taken alone will sweep away the pellicle in a few hours. Hydrochloric acid is also useful. (Dr. T. Laycock, p. 11.)

A case is related illustrative of several important points of treatment. On the third day, the disease progressing and considerable exudation existing, a strong solution of nitrate of silver was applied, the exudation being previously removed as far as possible without the use of force. In four hours the report states that the breathing had become "noisy not from implication of the larynx, but from blocking of the posterior nares from increased swelling." Now in such cases the local treatment cannot be too soothing and gentle. One point more is particularly worthy of note, that inhalation of steam seemed always to give great relief, and two distinct attacks of laryngeal spasm were relieved by it; a hot infusion of chamomile was used. A carefully strained infusion of chamomile used by means of a laryngeal or other syringe, to wash out the throat is peculiarly grateful—and in children, if there be much accumulation behind the nares, it is a useful plan to syringe the throat through the anterior nares with the same infusion, and the throat outside may be surrounded by soothing warm applications. (Dr. J. S. Ramskill, p. 18.)

It will be found that chlorate of potash used freely as a mouthwash acts just as well in ulcerative stomatitis (a diphtheritic affection) as when given internally. Why not try the chlorate as a topical application in cases of pharyngeal and tracheal diphtheria? By means of a sponge probang and a larynx syringe, a solution might without much difficulty be brought into contact with these parts. A saturated solution should be used, and freely and frequently applied. (Mr. Hutchinson, p. 22.)

After clearing the bowels with calomel and rhubarb, order strong beef-tea, wine, and above all, Bass's pale ale; patients express themselves much relieved in the throat as it is swallowed, and feel greatly exhilarated after taking it. One ounce of the compound tincture of quinine taken in wine and water every four hours, is a medicine of the greatest use. Apply nearly equal parts of honey and concentrated muriatic acid by means of a probang about every sixth hour. After stripping off the false membrane a gargle made with tannic acid and water affords great comfort. (Mr. J. P. M'Donald, p. 14.)

The local application of strong nitrate of silver solution is almost "indispensable." Internally, chlorate of potash and hydrochloric acid may be given according to the following formula: Chlorate of potash two drachms; hydrochloric acid one drachm; water eight ounces; half an ounce for a dose every one, two, or three hours, according to the urgency of the symptoms. The undiluted acid should be poured upon the powdered salt, whilst in the mortar, and and as soon as the powder assumes a yellow colour and fumes of chlorine arise, dash in the water, by which the decomposition is arrested and the free chlorine retained in the solution. Where the disease extends to the larynx and trachea, and the symptoms become croupy, small doses of calomel and antimony are demanded, the system at the same time being supported by stimulants. (Mr. H. Lambden, p. 16.)

Dr. Kingsford condemns the use of mercury in these cases. In a late number of the 'Lancet' he says it is "especially contra-indicated." (p. 17.)

Turpentine in many cases acts somewhat similarly to mercury, preventing effusion of lymph, but stimulating instead of debilitating. It is frequently appropriate where mercury cannot be used, and may be employed with much advantage in diphtheria. To a child of from two to six years of age give ten minims of the spiritus terebinthimum every second hour, and five grains of the carbonate of ammonia every second hour, the child taking the turpentine one hour and the ammonia the next. The turpentine may be mixed up with egg and syrup. Besides this the child should take port wine, porter, and beef-tea, or wine with the yolk of egg, *ad lib.* This plan of treatment is most applicable to cases where decided croupy breathing and fits of suffocation have made their appearance. (Dr. E. Perry, p. 26.)

The following plan of treatment has been found of the greatest use in this affection. 1. A temperate, dry, well-ventilated room as can be obtained, no one being allowed to sleep in it except an attendant. Crowded bedrooms and animal effluvia are an exciting cause. 2. A calomel purgative, varying in strength according to the age and size of the patient ; and in children, where symptoms of laryngitis appear, a rapid exhibition of the chloride of mercury, such as a grain to two grains every hour till the breathing is easier, and then every three or four hours, till the false membranes are loosened, the bowels evacuate green stools, or vomiting. 3. The decoction of cinchona with hydrochloric acid, varying the dose of the latter from one minim to ten every four hours, in from a teaspoonful to two tablespoonfuls of the former. 4. Gargle with chloride of sodium and vinegar, a tablespoonful of each in a teacupful of hot water ; also inject this up the nostrils when they are becoming obstructed. This excels all other gargles ; it relieves the breathing and the fœtor, and causes the ulcers to heal. 5. Apply the stick of nitrate of silver to every part where false membrane or exudation can be seen. When the disease spreads beyond the reach of the caustic case, a probang and a clean sponge well saturated with a strong solution of nitrate of silver will answer. 6. Rub the external fauces with compound iodine ointment night and morning ; and where erysipelas may appear, apply the stick, and lay on a plaster of strong mercury ointment. 7. Keep the room and all else sweet and clean. 8. A nutritious diet is necessary. A little mutton every day ; boiled milk, rich gruels, and beef-tea, with hot port wine and water, (half wine, with sugar and lemon,) for all above ten years ; and warm milk-and-water for minors. All things should be taken warm. Cold drinks are an exciting cause. (Mr. R. Cammack, jun., p. 25.)

Diphtheria and Cynanche Maligna.—Give the following : Pulv. guaiaci ʒij ; sacch. pur. ʒj ; pulv. acaciæ ʒss ; aquæ ℥vj. Misce, et adde potassæ chloratis ʒss. Fiat mistura cujus sumantur coch. ij magna

2dâ horâ. Instead of using the solid nitrate of silver, use the following gargle: Sol. sod. chlor. ʒj; sacch. pur. ʒiss; aquæ ℥vj. Fiat gargarisma sæpe utendum. (Dr. W. A. Bryden, p. 17.)

Scarlatina.—Of the various means of treatment had recourse to quinine is of the highest value. Begin with it on the first appearance of the symptoms, repeating it every two or three hours, until the system is brought under its influence. (Dr. Morrison, p. 3.)

The use of tonics, either the citrate of iron, or the tincture of the sesquichloride, not varying the *plan* of treatment, even when serious complications present, will be found very successful in the treatment of scarlatina. One gratifying result is, that with few exceptions the children escape that serious and frequent sequel—anasarca. (Dr. E. Bishop, p. 4.)

AFFECTIONS OF THE NERVOUS SYSTEM.

Delirium Tremens.—A case of delirium tremens is recorded: the subject, a stout healthy man, in which laudanum and hyoscyamus having completely failed in moderating the violence of the symptoms, chloroform was administered; in five minutes he fell asleep, and continued sleeping for six hours, when he awoke, and the symptoms of the disease had vanished. (Ed. of Lancet, p. 58.)

We apprehend that the *indiscriminate* use of chloroform in delirium tremens would be highly dangerous. If a sly drinker, one who habitually gets nearly drunk, be compelled to leave off his stimulants suddenly, he will probably be attacked with delirium tremens; but in this case the use of chloroform would be hazardous. You have an impoverished vital energy, an exhausted nervine force. Small doses of brandy and constant administration of small quantities of beef-tea are here called for. But where, as in the case mentioned above, the man is not an habitual drunkard and the constitution is good, in fact, if we may use the term, when the disease is more sthenic, chloroform will be found invaluable; opium and brandy injurious. (Ed. of Retrospect, p. 59.)

Chronic Alcoholic Poisoning.—From the long-continued use of alcoholic drinks, even long after their discontinuance, various nervous symptoms sometimes arise, as hallucinations and loss of sleep. Oxide of zinc in two-grain doses twice a day, an hour after each meal, is the best medicinal treatment that can be adopted, this dose may be gradually increased till the patient takes six or eight grains twice a day. Of course it is necessary for the patient to cease drinking. By the use of the above remedy sleep was induced, and the trembling of the body and limbs along with other nervous symptoms, rapidly disappeared. (Dr. Marcet, p. 57.)

Myalgia.—Dr. Inman has written another able article on myalgia or muscular pains. The importance of this affection does not arise from it *per se*, but from its great resemblance to other painful affections, as hysteria, neuralgia, pleurisy, peritonitis, disease of the liver, kidney, bladder, or uterus; for all which affections the author has seen it mistaken, of course causing needless alarm to both patient and physician. It is generally attended with want of power of the system; the fleshy parts of muscles, or their tendinous prolongations, will not bear the least stretching, and in many cases the pain arises solely from this cause, from over fatigue, &c. The pain is independent entirely of the course of nerves, is hot and aching, and attended commonly with tenderness on the least pressure. (Dr. T. Inman, p. 89.)

NEURALGIA.—Neuralgia is gout attacking the covering of a nerve, as gout attacks the covering of joints, &c. In one person gout thus attacks a nerve, in another the joints, in a third the aponeurosis of muscles. In neuralgia, from deficiency of oxidation uric acid may remain unchanged, or by more oxidation may become oxalic acid, but stops before being changed into the last products of oxidation; carbonic acid and urea. The treatment therefore with respect to medicine, is to supply the increased quantity of oxygen necessary for changing the oxalic to carbonic acid; this can be done in some measure by nitro-muriatic acid, but the most effectual method is air and exercise with proper food. For an explanation how oxygen is supplied, see Dr. Easton's paper at page 36. Give twenty drops of nitro-muriatic acid in one ounce of infusion of calumba, three times a day. If the affection is gouty, showing itself by increased quantity of uric acid, and the urates, it is better to give colchicum, acetate of potash, and opium, as in the following prescription:—℞. Acid potass.; vin. sem. colch.; liq. opii sed. ā ʒss.; aquæ ʒv.; misce; cuj. mist. sumat. ʒss. ex aquâ octavâ quâque horâ. (Dr. J. A. Easton, p. 31.)

A series of cases illustrative of the use of narcotic injections in local neuralgic affections, according to the suggestions of Dr. Alexander Wood, of Edinburgh, is published by Mr. Hunter of St. George's Hospital. A few drops of a very strong solution of the acetate of morphia are passed into the cellular tissue by means of a syringe, such as is used for the injection of the perchloride of iron in nævi. In the first case related, one of sciatica, the internal administration of morphia and colchicum having failed, three-fourths of a grain of acetate of morphia were injected into the cellular tissue at the lower border of the buttock, with the effect of relieving the pain and procuring sleep. In the evening this was repeated, but into the cellular tissue of the arm. One day intervening, this was again repeated over the sciatic nerve. He had no sickness from the morphia, and walked about a good part of the afternoon seeming "delighted with his progress." One more injection sufficed for complete cure. (Mr. C. Hunter, p. 47.)

Dental Neuralgia.—Place in the ear, on the side on which the neuralgia prevails, a little of the following, on cotton wool: acetate of morphia, one-and-a-half grains, acetic acid, two drops, and eau-de-cologne, ℥ij. (M. Balloy, p. 86.)

Rheumatism and Chorea.—Probably there is no fact in pathology better established by experience than the connexion between rheumatism and chorea; the former being the cause, the disease in fact, the latter only a symptom. Always carefully examine whether there be a rheumatic history; in some cases, of all symptoms there may be only one leading to this suspicion, viz., urine highly loaded with lithates. If there be no febrile state to account for this state of urine, though not in itself actual evidence, it is in most cases highly presumptive of the existence of the rheumatic state. In one case we have seen chorea and loaded urine the only symptoms leading to the detection of acute pericarditis. (Ed. of Retrospect, p. 80.)

Tetanus.—In *acute* tetanus all drugs are utterly useless in retarding, mitigating, suspending, or arresting its progress. Division of the nerve, leading to the wound when it can be found and isolated, has been done with success, and it is better to do this pretty high up in the limb, beyond the sphere of the local irritation. The occasional inhalation of chloroform will alleviate, though it will not cure, acute tetanus. We must remember that we have an exhausting disease to deal with, and the patient will soon sink unless supported. If the case, however, assume the *subacute* or *chronic* form, calomel and opium, and even belladonna may be employed with advantage. Keep the patient quiet and support his strength. (Prof. Erichsen, p. 69.)

Opium is primarily a stimulant, and its effects on the muscular system are owing to its removing the influence of the will over it. Hence in no instance, and this is the result of experience, does it directly affect the muscular spasm. In chronic cases it has no doubt often saved the patient by helping to sustain the system until the disease has worn itself out. The action of aconite is quite different to this, it acts mainly on the spinal cord, inducing muscular paralysis, and affecting the brain but little, if at all. It is to aconite then, and conium, which when good resembles it in this part of its action, that we must look for relief in diseases depending on irritability of this part of the nervous system. Several cases are related in which aconite was employed in tetanus. In one which occurred to Mr. Page at the Carlisle Infirmary, it is observed, on all occasions the symptoms were subdued after the aconite had been fairly given. (Mr. C. de Morgan, p. 78.)

Tetanus and Chorea.—In very violent cases the injection of a third of a grain of acetate of morphia beneath the skin, will procure sleep and cessation of the movements for some hours. It is only a palliative, but in this manner may be used to procure the rest, the absence of which causes so much exhaustion. (Mr. C. Hunter, p. 50.)

WAKEFULNESS.—Opium, morphia, and other sedatives will in some cases entirely fail in procuring sleep, or even cause a little delirium, whilst a little morphia (a third or half a grain of the acetate) injected into the cellular tissue of any part of the body, will act rapidly and effectually, procuring sleep and allaying irritation. An interesting case illustrating the above is related. (Mr. C. Hunter, p. 53.)

AFFECTIONS OF THE CIRCULATORY SYSTEM.

ARTERIES.—*Metallic Ligatures.*—It is probable that it will be found that metallic sutures round arteries and for large and small wounds will be the best. They cause less swelling and effusion. (Prof. Simpson, p. 220.)

NÆVUS.—Do not be in too great a hurry to operate in cases of nævus. Many cases which seem to require operations cure themselves spontaneously. Both surgeons and patients are in too great a hurry to have recourse to operations. If a cutaneous nævus, it may grow to a certain size and then cease. It may now be the seat of eczema or ulceration, and then cicatrize and disappear. The subcutaneous nævus, however, will not disappear in this way, but may, nevertheless, in time degenerate and be absorbed in youth. Be patient, therefore, in these cases, unless the disease be so placed as to produce deformity, or involve important parts, such, for example, as the eyelids. (Mr. J. C. Wordsworth, p. 217.)

In removing a subcutaneous nævus of the scalp it is better not to attempt to preserve the skin ; the white apiliferous cicatrix contracts, and in after-life becomes almost invisible. The flat nævi which occur behind the ear are treated at University College Hospital by the free application of the fuming nitric acid. Nævus of the fontanelle is a more formidable disease, generally it is pretty deeply seated, and is, as it were, close upon the brain and its membranes : for the removal of this, the use of any sharp instrument is quite inadmissible ; pass a *blunt-eyed* probe, armed with a double silk ligature, beneath the base, and again across the tumour sideways ; at right angles to the first ligature make slight punctures with a lancet through the healthy skin, admitting the entrance and exit of the needle ; the ends may be tied so as to include the tumour in four parts. The subcutaneous discolouration or staining of the eyelid, which constitutes the general appearance of nævus in this part is better left untouched ; the use of the knife or caustics cannot but produce the worst results. Injection with perchloride of iron may sometimes be advantageously employed in many cases *if the skin is unaffected.* If the whole thickening of such a part as the lip or cheek is involved, our only resource is to excite inflammation in the mass by caustics or setons introduced. If on the lip, and not large, it may be excised, and the part then treated like a hare-lip. (Prof. Erichsen, p. 209.)

Purpura Hemorrhagica.—The use of the tincture of larch bark is recommended in the treatment of purpura hemorrhagica. Four cases are related in which improvement certainly seemed to date from its use. Dr. Moore remarks that the tincture is one of the most elegant forms at our disposal of prescribing a terebinthinate, either as an addition to a compatible expectorant, or other fluid mixture, or to be given *per se.* The dose is from ʒss. to ʒiij.; of the extract, from grs. j. to gr. v. The value of terebinthinates in the treatment of purpura has been long acknowledged, the difficulty of their exhibition having alone restricted their employment in many instances; whereas in the preparations of larch bark, whilst all the valuable styptic qualities of the turpentine are retained its exhibition is not attended with disagreeable results. (Dr. Hardy, Dr. Moore, p. 102.)

Varicose Veins.—A case occurred lately at University College Hospital, where a mass of enlarged veins, the size of half an orange, was situated in the popliteal space. A pin was passed under the upper extremity of the tumour and tied in the usual way, and the parts below were injected with a solution of the perchloride of iron, by means of a small French syringe, the piston of which works with a regulating screw, and the point of which is made sharp, and intended to penetrate the integuments. The intention of this operation is to coagulate the blood in the large vessels, and thus cause their obliteration. (Prof. Erichsen, p. 208.)

Varicose Veins and Ulcers.—For some time past the following method has been followed at the Great Northern Hospital in the treatment of varicose veins of the legs, whether associated with ulceration or not. The leg is firmly encased in a bandage which is saturated with a mixture of starch and glue; a uniform support is thus offered to the swollen vessels. This bandage, when well applied, can be worn for weeks or months, but the rapid subsidence of the swelling of the leg, in some instances may require a recasing of the limb at an earlier period. This plan of treatment in many cases has proved as effectual as obliteration of the vessels by the twisted suture, and it moreover possesses the advantage of being available in almost every instance of varicose enlargement of the superficial veins of the extremities. When there is also ulceration, a *window* must be cut somewhat larger than the circumference of the sore or sores, to admit of the treatment of the sore without disturbing the case. (Mr. Price, p. 307.)

Wounds of the Palmar Arch.—In hemorrhage from wounds of the palmar arch, correctly adjusted pressure should supersede that more painful and hazardous procedure, hitherto deemed requisite, viz., indirect arterial deligation. The graduated compress affords the most effectual mode for its employment. First, bandage the fingers separately, and continue this upwards to the wound, and apply partial compression to radial and ulnar, or brachial arteries according to convenience. It is of primary importance that the compress should be placed in a dry bed; for this purpose lightly pencil over the wound with nitrate of silver, by which means the divided vessels are constringed to some extent, and an adherent film or pellicle is instantaneously formed upon the surface, highly advantageous in allowing the deeper portions of the compress to be accurately and duly applied. Now apply the compress piece by piece, the smallest first, accurately in contact with the bleeding point, over this others, gradually increasing in size. The whole conical mass is now covered by the bandage continued upwards, keeping all correctly adjusted. (Dr. C. D. Arnott, p. 200.)

AFFECTIONS OF THE RESPIRATORY ORGANS.

Artificial Respiration may be carried on by alternately squeezing the chest with the hands, so as to induce a forced condition of expiration, and removing the hands, when the elasticity of the parietes will restore them to a medium state and cause the entrance of air. Mr. Humphry has more than once saved life by resorting to this simple process. (Mr. G. M. Humphry, p. 113.)

Croup.—M. Jodin, in a recent communication to the Academy of Sciences, states his belief that croup and pseudo-membranous angina are merely parasitical diseases, due to the formation of fungi. The treatment which he recommends is the application of the sesquichloride of iron, which completely impregnates the fungus, and may be absorbed without danger. (M. Jodin, p. 118.)

Trachea, *Foreign bodies in the.*—Sometimes the foreign body fits the trachea or bronchial tube so tightly that no air can be drawn in, so that the lungs or lung cannot contain enough air for a forcible expiration to expel the body. In this case introduce a probe or other instrument, so as to move the foreign body a little from its position. This will enable the patient to take a good inspiration, and then a forcible expiration (in a proper position) may probably expel the substance. (Sir P. Crampton, 'Dublin Hospital Gazette,' Dec. 1, 1858, p. 357.)

A professor of music, of Arundel, having by chance a fourpenny-piece in his mouth, it was suddenly drawn into the trachea. The administration of an emetic and violent coughing did not suffice for its removal, and on the following day he consulted Mr. Jones of Chichester. At that time there were no urgent symptoms whatever; but a perceptible râle could be detected at the bottom of the trachea, just over the bronchial tubes. Bearing in mind the case of Mr. Brunel, a cushion was placed on the floor, and the patient, suspended by his legs above it, was forcibly struck with the palm of the hand between the shoulders. In the course of two or three minutes, during a slight fit of coughing, the coin was dislodged, and fortunately expelled from its perilous position. (Mr. C. S. Jones, p. 119.)

PHTHISIS.—A case is related in which the expectoration, the diarrhœa, and other symptoms of relaxed fibre of atonic sympathetic nervine system, seemed to be considerably relieved by the administration of small doses of ergot of rye. This was continued with small doses of ipecacuanha and morphia. (Dr. B. P. Staats, p. 110.)

PNEUMONIA, *Secondary, of Rheumatism.*—Opium and ammonia are preferable to wine for the support of the exhausted nervous system, when this demands especial attention in rheumatic pneumonia. Depletion done judiciously may be borne, but it requires great judgment—if done wrongly it will tend to produce or increase the secondary inflammation. As a general rule you may use blisters, slight cupping, and watery evacuations from the bowels and kidneys. (Dr. E. L. Ormerod, p. 103.)

STETHOSCOPE.—It is suggested that the moveable extremity or body-piece of the stethoscope should be made of vulcanized india rubber or gutta percha, and should be so shaped as to fit into the end of the stethoscope *sideways.* This enables the practitioner to examine the sides of the patient more easily, and, when the patient is dressed, to apply it better under the dress. (Mr. W. Bryant, p. 112.)

AFFECTIONS OF THE DIGESTIVE ORGANS.

ASCARIDES.—Santonine has scarcely any perceptible taste, which, with the small quantity which requires to be administered as a dose, forms a strong recommendation in its favour. It acts as a specific poison to the animal. It may be given in one or two large doses, or repeated small ones. For a child five or six years old the following is a good formula:—Santonine, three grains; powdered loaf sugar, five grains; mix, make into a powder, and take one every six hours to the extent of four doses. An hour or two after the administration of the last powder, a dose of castor oil should be given to facilitate the expulsion of the dead worms. Should any signs of the intestinal nuisance present themselves subsequently, a single dose of santonine will usually suffice to free the patient. In adults, the santonine may be given in about five-grain doses, with a supplementary cathartic draught, or a proportionate quantity of castor oil, as directed for children. Where the ascaris vermicularis is the leading type of the parasite, an enema of warm water, containing santonine in solution, will be found useful; some more warm water being injected into the rectum a few hours afterwards, in order to bring away the lingering drug and dead ascarides. (Dr. W. A. Smith, Dr. J. More, pp. 128, 129.)

Cleft Palate.—Mr. Fergusson has modified his operations for cleft palate, of late, by using silver wire. He knots the silver wire to a thread previously passed across the gap. This may be improved still more by the use of a needle flattened *parallel to the plane of the curve*, instead of at right angles. The incisions through the flaps of the cleft palate are consequently at right angles to the edges of the palate, instead of being parallel to them. The head of the needle can be more readily taken hold of by the forceps, and the knotted thread is avoided. (Mr. C. Heath, p. 221.)

Flatulence.—Flatulence may proceed from four causes: swallowing of air mechanically during ingestion, fermentative or putrefactive changes in the ingesta; and, lastly, secretion of gas by the mucous membrane itself. The last is by far the most common and important. Now this distention almost invariably occurs along with, and is consequent upon, some debilitating cause, as after fasting; in anæmic states; after prolonged muscular action; after parturition; after influenza. It is common in hysteria, low fever, ascites, &c., and from the use of tobacco, especially in persons unaccustomed to it. In many cases the use of particular articles of diet much aggravates the symptoms, the weakly stomach being apparently irritated by its presence. Dyspnœa, palpitation, torpid liver and bowels, are frequent concomitants of this state. In the treatment of this affection, in the first place, improve the general health by all means in your power; husband the powers of life, and augment them by every available resource, by steel, quinine, cod-liver oil, and other tonics, wine, ale, and such other stimulants as agree, bearing ever in mind that even medicine may be prejudicial if not judiciously administered. Change of air is often essential, and of more use than anything else. If some transient cause only operates, as the results of a debauch, over fatigue, mental excitement, prolonged fasting, and the like, nothing more is required than some gentle stimulant, as sal volatile, quiet, and mild diet. For immediate relief to this affection when distressing, opiate epithems, or frictions externally, assafœtida or galbanum pills internally, generally suffice, or some warm condiment, remembering, however, that their use is drawing on already diminished capital. Soda is good when there is much acidity, bismuth when there is much pain, and carminative aperients when there is constipation; all these, however, must only be considered as temporary auxiliaries. (Dr. T. Inman, p. 119.)

Fistula in Ano.—By the ordinary means used in the cure of this fundamental nuisance, confinement to the house, if not to bed, is generally necessary. The ligature may be used with the greatest advantage when it is desirable that business should not be interrupted. The instruments required are two very fine silver probes seven inches long ; one probe blunt the other sharp-pointed at one end, and both perforated at the other. Having previously prepared your patient by administering an aperient, introduce the blunt-pointed probe, armed with silk, into the external opening of the fistula, pass the index finger into the rectum, search for the opening, seize the extremity of the probe (which is easily bent), draw it through the anus, and, tying the ligature, you complete the operation. Three cases are related; in the first, the ligature came away in fourteen, in the second, in twenty-one days. In one case it is mentioned that the patient, a professional man, during the process of cure, continued to discharge the greater part of his duties without intermission. (Dr. D. Mackinder, p. 237.)

The ecraseur is peculiarly useful in the treatment of anal fistula, especially when we have to do with the severer forms of the disease occurring in broken-down or debilitated constitutions, in whom we find, along with the local disease, a strong tendency to, if not the actual existence of organic lesion. The form of instrument made by M. Charriere is preferable to that originally introduced ; one end of the chain is fixed and the other is tightened by a nut, working on a fine screw, each turn of which brings in one-tenth of a link ; thus the process of crushing is smooth, and perfectly free from jerking or laceration. The only difficulty experienced is, in the introduction of the chain, but this may be readily accomplished by first passing a piece of silk cord, by means of an eyed probe, bent to a proper curve. By means of the cord so passed the chain may be readily introduced. (Mr. F. M. Quinlan, p. 239.)

Gastritis.—Hygienic means and the management of the diet will often cure mild cases without the use of medicines at all. But in the more severe and obstinate forms of chronic gastritis, the local medicinal treatment of the diseased mucous membrane has been unduly neglected. Nitrate of silver may be applied locally to the gastric mucous membrane in two ways. In the first place the crystallized nitrate dissolved in distilled water, in the proportion of from half a grain to four grains to the half ounce, may be given at bed-time on an empty stomach, and repeated every second, third, or fourth night, according to the severity of the case. The stomach should be strictly empty, the patient recumbent, and he should be made to roll about immediately after taking the medicine. But in some of the most severe forms it may be applied much more efficiently by injecting the solution into the stomach. The strength of the solution should be from one to four grains in three ounces of distilled water. During the employment of these injections the diet must be confined to small and frequent meals of milk. Counter-irritation to the epigastrium, bismuth, and gentle tonics may be employed as adjuvants. (Dr. A. Fleming, p. 126.)

HERNIA.—*Wützer's Operation.*—The needles in present use are too short, and apt to slip. They should be at least six inches long. The instrument should not be withdrawn at an earlier period than eight days, and not later than fourteen days. The instrument may be made of much lighter materials than usual, as malacca or bamboo cane, or metallic cylinders with a central tube for the needle. If within five or seven days no discharge of epithelium, fat, or serum appears from the invaginated scrotum, some preparation of cantharides, as the emp. or acet. lyttæ should be introduced. (Mr. E. Lister, p. 233.)

Radical Cure of Femoral Hernia.—Several interesting cases of the radical cure of femoral and ventral hernia are related; they are the first attempted in this country. The mode of operating was the following: The patient being on his back, and the buttocks well raised, the hernia is returned, the little finger being carried well through the crural canal and femoral ring. A well-curved canula needle is carried on the finger, and its point made to press against the abdominal parietes; the needle is then thrust through them, and a silver wire being passed into the eye, it is drawn through. A small piece of vulcanized india-rubber, about the size of a split pea, is attached to the crural end, and fastened by means of a split shot; the other extremity is then passed through another piece of rubber about the size of a florin, and the two extremities drawn tightly together and fastened by a split shot. A portion of integument is thus drawn into the canal, and by an incorporation of this invaginated plug with the borders and surfaces of the crural canal, the radical cure is effected. The wire may be loosened on the eighth or ninth day. From the cases related (six in number), the conclusions arrived at are: that this is is an operation "unattended with danger;" that "though the peritoneum be wounded (even in three places), its perforation is innocuous." (Mr. R. Davies, p. 233.)

ITCHING OF ANUS.—There are few things more distressing and troublesome. Use the following ointment: Glycerine, one ounce; purified tar, half a drachm; and with the aid of heat, powdered starch, half an ounce. This makes an ointment of thin consistence, and easily spread. It dries up excoriations, checks exhalation, and dissipates slight cutaneous phlegmasiæ. Another preparation of pitch is the following: Cod-liver oil, two parts; oil of pitch, one part; used for itching and excoriations, as the other. (M. Gibert, p. 240.)

MAL-ASSIMILATION IN CHILDREN.—Sometimes a pallid cachectic emaciated child will in a few days gain some pounds in weight, after the operation of a brisk cathartic. What explanation can be offered of this fact? If the intestines of such children be examined, the mucous absorbent surface will be found to be covered by a thick tenacious mucus, completely preventing assimilation of the chyle. A brisk cathartic, especially calomel, which may be combined with rhubarb and scammony, will wash this away, and the lacteals thus be left free to absorb the chyle, with which, for the first time they come in contact. (Mr. M. Henry, p. 355.)

Rectum, *Irritable Ulcer of the.*—A small ulcer within the rectum, as is well known, produces a most intolerable amount of suffering and misery; and it is well to bear in mind that a section of the ulcer with a partial division of the sphincter, as in fissure of the anus, will completely effect a cure. (Prof. Fergusson, p. 241.)

AFFECTIONS OF THE BONES AND JOINTS, &c.

Amputation *at the Carpo-Metacarpal Articulation.*—By amputating at the carpo-metacarpal articulation, instead of at the wrist-joint, as generally done, you preserve uninjured, the motor power of the wrist-joint, which is lost in the latter operation; the flexion and extension is perfect, and a useful substitute for a hand may be adapted to it. (Mr. R. Rudall, p. 183.)

Club-Foot.—Surgeons operate too early in these cases: the child should be about three years old. The fascia plantaris is often not divided by surgeons, although it is often more the cause of the distortion than the tendo-achillis and tibialis anticus. The tibialis anticus never wants dividing. (Mr. J. Lizars, p. 197.)

[We think Mr. Lizars is not quite correct in his sweeping condemnation of the practices of others, although his opinions deserve great weight.—Ed.]

A simple and ingenious apparatus for cases of infantile equino-varus has lately been invented by Mr. Bigg, of Leicester Square. The mechanical action is based upon the customary principle of first reducing an equino-varus to the condition of equinus, and then restoring the foot to its normal position. The necessity for two separate appliances is obviated, whilst the cost, therefore, is proportionally less. A wood-cut and description of the instrument will be found at p. 199.

Cysts on the Frontal Bone.—Sebaceous cysts are often found near the external angular process in close contact with the bone; they are usually congenital, attain a certain size, and then remain stationary. (Mr. G. M. Humphry, p. 200.)

Dislocations of the Thumb.—Mr. Humphry finds the difficulty so commonly experienced in reducing dislocations of the thumb to depend upon the fact that the sesamoid bones or bodies are driven back with the displaced phalanx, and intervene between the articular surfaces, so as to prevent their coming in contact. In a case of compound dislocation of the distal phalanx, which had resisted attempts at reduction for more than an hour, he succeeded in quickly effecting the object by passing a probe beneath the sesamoid body, and tilting up its lower edge. (Mr. G. M. Humphry, p. 174.)

Excision of Knee.—Of thirteen cases operated on by Mr. Humphry one died; amputation was required in four; eight recovered with useful limbs. No severe constitutional disturbance followed the operation in any of the cases. Mr. Humphry makes a crucial incision through the skin, and detaches the soft parts from the bones as little as possible. He thinks the imperfect growth of the limb which has been observed in some young subjects after the operation was owing to the section of the bones having made through the shafts, instead of through the epiphyses. (Mr. G. M. Humphry, p. 156.)

Fracture of the Neck of the Thigh-bone.—In this accident the periosteum and synovial membrane are usually torn on the fore part, and escape behind, because they are more closely connected with the bone in front. and because the neck of the thigh-bone presents a curve with the convexity forwards. The comparative frequency of the accident in elderly persons is owing, first, to the diminution of the angle which the neck makes with the shaft; this throws the hips out, and renders them more exposed to injury, and places the neck in a less favourable position for bearing weights and resisting blows; secondly, to the absorption of the cancellated structure upon which the strength of this part of the skeleton mainly depends. The causes of the failure of bony union are: first, the investing tissue does not suffice for the formation of provisional or external callus; secondly, the fractured surfaces are not maintained in sufficiently close contact for them to be joined directly by osseous material (unless one be wedged into the other, in which case bony union may take place); thirdly, the synovial and other fluids finding their way into the fracture, dilute and wash away the reparative medium; fourthly, the part of the neck external to the fracture usually becomes absorbed. (Mr. G. M. Humphry, p. 175.)

Hip-Joint Disease.—In that irritable condition of hip-joint disease, where the limb can scarcely be touched without eliciting screams, the application of gutta percha, moulded accurately to that part of the body, at whatever angle the thigh may be flexed at the time, is very favourable to the subsidence of the painful inflammatory process. As the thigh gradually reassumes its normal position, the gutta percha may be reapplied a few times, till a cure is effected. (Mr. Brodhurst, p. 164.)

Hysterical Joint Affections.—In three-fourths of diseases of the knee-joint occurring in young women from fifteen to twenty-five, you will find more or less palpably the traces of hysteria; for even the presence of real disease of the joint is no guarantee or safeguard against the existence of some symptoms really attributable to hysteria. (Mr. F. C. Skey, p. 166.)

Injuries of the Hand, Fingers, &c.—Dont be in a hurry to amputate a finger or hand, however severe the injury. It is surprising how nature will cure injuries of small bones and joints, when the parts are connected only by shreds of lacerated skin or flesh. In the hand particularly, preserve the thumb or a finger or two. (Mr. S. Solly, p. 185.)

Scapula, *Removal of by Operation.*—The entire scapula may be removed by operation with safety, leaving the head of the humerus to form for itself a new joint, which it will do, with extraordinary usefulness of the limb. (Mr. G. M. Jones, p. 181.)

AFFECTIONS OF THE URINARY ORGANS.

Albuminuria, *Scarlatinal.*—The renal disorder which succeeds to scarlet fever is identical with the acute form of morbus Brightii, and hence the principles on which these cases should be treated must be the same. They may be summed up in a few words. To lessen the watery or dropsical state of the blood, and to diminish the local blood stasis in the kidneys. The first is obtained by acting briskly on the intestinal track of mucous surface, by which a large amount of fluid is rapidly eliminated from the system. The second object is secured by calling into activity the functions of the skin by diaphoretics, warm clothing, and warm or hot-air baths. The functions of the skin are vicarious of those of the kidney, and whatever augments the first lessens the activity of the latter. The congestion of the kidneys is further alleviated by dry cupping and occasionally by abstracting blood by cupping from the loins; but the cases are exceptional which will require the abstraction of blood. If these objects can be successfully attained—indicated by the disappearance of the dropsy and the absence of blood from the urine—no time should be lost in placing the organism in a condition to regain those qualities and powers, the loss of which are most plainly manifested by the impoverished state of the blood. Amongst medicinal remedies, the ferruginous are the most essential; and amongst these, the tincture of the sesquichloride of iron is the most valuable and efficacious. (Dr. W. R. Basham, p. 9.)

Calculus in the Urethra.—You may generally succeed in removing a calculus from the urethra by means of the scoop of a small silver director passed into the urethra; when you once feel the stone, manœuvre to get the scoop beyond it; you then have it safe; alter the angle of the instrument, and it readily comes forward. This is far superior to the use of forceps of any kind. (Mr. S. Smith, p. 275.)

HYDROCELE.—Iron and other metallic wires, when in contact with living tissues, generally cause adhesive inflammation only. Dr. Rothmund, of Munich, tried this in hernia. Pass a slender wire or metallic seton through the sac in hydrocele in this way. First traverse the sac from below upwards with a long handled surgical needle, such as is used in transfixing and tying hemorrhoids, threadind the eye of the needle after it is projected through the scrotum above, with three or four slender iron threads, pulling the needle then backwards through the sac and out, and thus leaving the metallic seton in its place. The liquid drains off in an hour or two, adhesive inflammation sets in, and progresses for two or three days. (Prof. Simpson, p. 277.)

LITHOTOMY.—Be sure and always *hear* the sound of the stone in contact with the instrument when you make your examination: do not be satisfied with feeling the sensation. From non-observance of this, have arisen operations where no stone has been discovered at all. The best sound is one with a bulbous extremity, it is more freely moveable when introduced, at the same time possessing all the advantages of one of larger diameter in its whole length. Two or three days before operating pass the grooved staff which you intend to use; any bungling on the operation table is thus avoided. Never operate a short time after your patient has taken a long journey, when an increased amount of irritation of the urinary organs is sure to exist. Never omit to have an enema administered an hour or two before the operation, so as to have the rectum empty. (Mr. S. Smith, p. 244.)

Success depends in a great measure on attention to little things. The "draw sheet" must be nicely managed. A sheet is folded in four folds, and one end rolled up like a calico bandage: the patient's breech rests upon the other end, while the roller portion lies by his side. The soiled portions can be successively withdrawn without disturbing the patient. If, two or three hours after the operation, you find the urine has not flowed freely from the wound, do not delay, but at once pass the finger (previously oiled) through the wound into the bladder; and the urine will immediately flow. Many cases of infiltration of urine may be thus avoided. All going on well, and no untoward symptom having taken place for four days, you may begin to give your patient more generous diet; a little beer and meat may be allowed. After the urine has ceased to flow by the wound for three or four days, you will gain time by strapping it up with adhesive plaister. (Mr. S. Smith, p. 253.)

A curved staff possesses the following advantages over the straight one. It renders the membranous part of the urethra more prominent for the first incision. It is a more efficient sound, exploring the bladder in all directions. It is much more easy of introduction. There is no possibility of its escaping from the bladder, however the patient may struggle, whilst Key's straight staff very readily escapes in front of the prostate. When the handle of the curved staff is depressed in the second position, it lifts the bladder from the rectum and renders it less liable to be wounded, and when in this position it is, moreover, to all intents and purposes, a straight staff for the passage of the knife. (Mr. S. Smith, p. 255.)

It is a great improvement on the scalpels ordinarily used in this operation to have a small blunt-pointed beak; this runs in the groove of the curved staff with great facility; you avoid all chance of transfixing the bladder. Four of these instruments will constitute a perfect set, the largest eleven-sixteenths of an inch broad, and two inches and a half long in the blade. The other three decrease in size successively one-eighth of an inch in length and breadth. A scoop with a good curve is more useful than forceps, because one of your fingers forms the other blade, and that finger has sensation. (Mr. S. Smith, p. 243.)

An instrument is described, and the manner of using it detailed, by means of which this operation seems to be rendered one of the easiest in surgery. The instrument consists of two parts; the first, a rectangular staff, is introduced in the usual manner; and the second part, a piercing director attached to the handle of the first by a joint, is introduced from without, through the intervening tissues till it joins the first part at the angle: the knife is then run along the groove thus formed the whole way, into the bladder. The advantages claimed are, that the very commencement of the prostate is transfixed, and the extent of incision may be defined with the greatest exactness. There is never any difficulty about finding the groove, and the whole operation is rendered so simple that the merest novice can perform it. The instrument is a modification of one invented by Dr. Buchanan. (Dr. R. T. Corbett, p. 267.)

Lithotomy in Children.—A very common cause of failure is the use of a staff in which the curve is too short; such an instrument in one of the steps of the operation may readily be withdrawn from the bladder, and the surgeon, ignorant of the fact, thrusts his knife forwards and fails to enter the bladder. The staff of enormous curve and the rectangular staff, are the opposite extreme, and equally dangerous. The observance of the following principles are highly important to the success of the operation: First, let the bladder be fairly distended with water; secondly, let your staff be sufficiently long at the end, so as to ensure its constancy in the bladder during that part of the operation in which this instrument is required ; thirdly, direct your assistant to hold it well up under the arch of the pubis, so that you run no risk of wounding the rectum ; fourthly, sink your knife fully into the ischio-rectal fossa, that by your first incision you may lay bare the membranous portion of the uretbra ; fifthly, be quite sure that you have freely opened the urethra in the membranous portion, and that the beak of your knife is well in the groove of the staff ; sixthly, in dividing the neck of the bladder be quite sure that you have fairly entered its cavity ; seventhly, never withdraw the staff, or attempt to pass your forceps until you are satisfied that your left forefinger is fully in the bladder ; and this you will know by a rush of urine, a sensation of vacuity, and possibly by feeling the stone itself. (Mr. J. Adams, p. 264.)

STRICTURE OF THE URETHRA.—*Syme's Operation.*—It is singular that the success which has attended Mr. Syme's operation should have varied so considerably in different hands. This can be accounted for in a great measure by the kind of stricture for which the operation had been undertaken by different surgeons. An incision through the bulb is a safe proceeding, but an incision through the membranous part, involving, as it necessarily does, a division of the deep perineal fascia, is a very unsafe proceeding, and not to be undertaken except in cases of perineal fistulæ, where the parts are often so condensed by adhesive inflammation, that incisions may be made with instruments : otherwise the operation is adapted only to cases of stricture confined to the bulb of the urethra. (Mr. H. Lee, p. 272.)

In some cases, in consequence of the great thickening and induration of the soft parts and altered condition so produced, it sometimes happens that it is with the greatest difficulty the operator can cut down directly upon the director. To obviate this difficulty a urethrotome has been devised by Mr. C. F. Maunder, of Guy's Hospital, by which all possibility of such an accident is avoided. A woodcut and full description of the instrument will be found at p. 274.

AFFECTIONS OF THE SKIN, &c.

BED SORES.—As soon as the skin reddens or becomes painful, spread over the threatened part a layer of tannate of lead. Of all the topical remedies used, none is preferable to this, and if applied in time, it will almost always prevent sloughing. The following is the formula for its preparation :—Corticis quercus contusæ, 1 oz.; aquæ, 8 oz. Reduce by boiling to 4 oz.; strain ; add liq. plumbi diacetatis q. s. until no further precipitate is formed. The deposit is collected upon a filter. (Mr. Leclerc, p. 306.)

Corns.—Corns may be rapidly cured by the application of the tincture of iodine; the corns disappearing in the course of a few days, if touched with the tincture several times a day. If situated between the toes, cover it with a piece of linen, steeped in a mixture of the tincture and glycerine. (Dr. Varges, p. 308.)

Erysipelas.—When in the legs or arms, elevate the parts as much as you can conveniently; it facilitates the cure considerably. (Mr. M. Henry, p. 306.)

Gunpowder Burns.—Persons are often tattooed for life, by accidental gunpowder burns. Prof. Busch recently succeeded in removing this disfigurement, by exciting an eczematous inflammation by means of a solution, (5 gr. ad. 8 oz.) of corrosive sublimate. This was kept applied during several hours for five days, with the effect of exciting a smart eczema, and detaching the granules of unburnt powder. The burn was quite recent, and whether the means is applicable to burns of an older date, remains to be tried. (Prof. Busch, p. 307.)

Ingrowing Toe-Nail.—After fomentation, interpose beneath the nail a small piece of lint upon which some ointment of perchloride of iron has been spread; all the surface of the excrescence, deprived of its epidermis, is covered over with this, and the dressing is renewed twice a day. At the end of four days the excrescence becomes dry and mummified, and is easily detached. The wound then assumes a regular aspect, and the case is completed at the end of a week. (Dr. Alcantara, p. 308.)

Lepra Inveterata.—In the treatment of this most obstinate affection, much will be gained by a proper regulation of the diet. Bread, milk, eggs, and vegetables, as potatoes, water cresses, &c., should alone be allowed, and all alcoholic drinks avoided. A warm bath twice a week is of the greatest use. The medicinal means principally of use are, arsenic, bichloride of mercury, and iodine, for which the decoction of elm bark forms a good vehicle. An ointment containing calomel and pitch is one of the best local applications. (Dr. Willshire, p. 303.)

Ulcers.—Applied to sores, nitrate of silver in the solid state is frequently too severe, whilst in the liquid state its action is on the other hand too transient. A pledget of lint soaked in a solution of this salt, and allowed to dry, does not possess either of these disadvantages; its action, whilst not so severe as that of the solid, is more permanent than that of the liquid application. The activity of the treatment may be varied by soaking it in a stronger, or a weaker solution, according to the nature of the case. (M. Riboli, p. 306.)

VENEREAL AFFECTIONS.

Condylomata.—In those raised patches of skin, known as mucous tubercles, or condylomata, existing about the verge of the anus, and around the genitals, but especially those which are wide spread and flat, the application of a powder, consisting of equal parts of savin and alum, will be found very successful in producing diminution of the swelling, and causing them to dry up. (Mr. Coulson, p. 303.)

Gonorrhœa and Leucorrhœa.—In weak and lymphatic subjects, injections of the perchloride of iron have been tried with success, the proportion of the perchloride being twenty drops to three ounces and a half of water. (M. Demarquay, Lancet, Dec. 11, 1858, p. 609.)

Primary Syphilis.—There are two entirely distinct forms of primary sores: distinct alike in course, results, and treatment. First, the true Hunterian, or indurated chancre with hard indurated edges, feeling like a cup of cartilage imbedded in healthy tissues, and moving freely over the underlying parts; if followed by enlarged inguinal glands these never inflame and suppurate, and the important point is, that this form is always followed by constitutional symptoms, unless destroyed before the induration appears, which happens generally in about from six to eight days. Secondly, the soft, or non-indurated chancre, with sharply cut, even, slightly undermined edges, much inclination to spread from the highly contagious nature of the secretion, not necessarily, though generally followed by suppurating bubo; and lastly, *there is no constitutional affection.* Both chancres should be destroyed with caustic, as early as possible, the soft to destroy its specific character, and hence its aversion to heal; the hard, for the same reason, on account of its tendency to infect the system. If induration, however, have occurred, no cauterization will avail. Thus, at the time when cauterization is of use, it cannot be determined to which variety the sore belongs. The best caustic is the Vienna paste or potassa c. calce made into small sticks. Ricord uses strong sulphuric acid made into a paste with charcoal; some astringent lotion, as a solution of tannic acid in water, should be used to restrain the abundant secretion of the soft variety, and thus prevent the spreading of the sore by infection of neighbouring parts. Nothing hastens cicatrization so much as a mild form of iron given internally. Now in this the soft variety, mercury is wholly out of place and must not be employed. In the indurated variety, mercury should be commenced at once, (the iodide in doses of half a grain to a grain and a half twice a day, is one of the best forms for administration,) and it is undesirable to exceed very slight mercurialism; a little opium may be combined with it to prevent relaxation of the bowels, and if the stomach is irritable, inunction may be substituted. (Mr. H. Thompson, p. 292.)

AFFECTIONS OF THE EYE AND EAR.

ARTIFICIAL PUPIL.—*Iriddesis.*—The usual way of operating for artificial pupil is often clumsy ; the pupil is too large and irregular and often too near the cornea. You cannot regulate the size and place by the old method. Try a new way by tying the prolapsed iris in the following way :—The patient, if at all restless, being placed under the influence of chloroform, the wire speculum is inserted, and, with a pair of forceps, a small fold of the conjunctiva close to the cornea is held so as to fix the eye. An opening is then made with a broad needle through the margin of the cornea, *close* to the sclerotic, and just of sufficient size to admit the canula forceps ; with it a small portion of the iris, near, but not close to, its ciliary attachment, is seized and drawn out to the extent considered necessary to enlarge the pupil ; a piece of fine floss silk, previously tied in a small loop round the canula forceps, is slipped down and carefully tightened around the portion of iris made to prolapse, so as to include and strangulate it. This manœuvre requires a little practice and dexterity, and is best accomplished by holding each end of the silk with a pair of small forceps with broad extremities, bringing them exactly to the place where the knot is to be tied, and then drawing it moderately tight. A single tie is sufficient ; the ends are then cut off, and the operation is complete. Little or no irritation usually follows. The small portion of iris included in the ligature speedily shrinks, leaving the little loop of silk, which may be removed from the eye about the second day. By this method the size, form, and direction of the pupil can be regulated to a nicety. (Mr. J. Critchett, p. 321.)

CATARACT. *Reclination of.*—When the lens is of mixed consistence (a hard nucleus enveloped in soft lens matter), and in close contact with the ciliary body and iris, thus obliterating the posterior chamber, the lens may be *spitted* by the needle. It is an improvement in the reclination of cataract in these circumstances to use two needles, pressing back "the outer and lower side of the lens from the iris with a fine needle passed through the nasal side of the cornea, thus making a free space for another needle (the sclerotic needle) to pass to the front of the cataract," and thus to recline the lens as desired. (Mr. J. V. Solomon, p. 320.)

Cataract with Diabetes.—The occurrence of cataract with diabetes has been long known, but very cursorily mentioned or passed over by authors. The fact is certain, however, that cases occur in which during the continuance of diabetes, cataract appears, generally running a very rapid course, and being in every instance yet seen symmetrically developed on both sides: the lenses increase remarkably in their antero-posterior diameter, so as to encroach upon the anterior chamber, and even to interfere mechanically with the free play of the iris. The colour is generally remarkably opalescent. In one case the very appearance of the cataract led to the discovery of the diabetes. Now, in the treatment of this form of cataract, strenuously avoid any operative interference, so long as a useful degree of vision is preserved. But when the period arrives that all useful vision is extinguished, unless the powers of life are rapidly failing, we must attempt to afford relief. From the uniform degree of softness, depression is inapplicable. Extraction cannot be performed because a wound in the cornea will not heal in this state of system. Solution, therefore, only remains, and keratonyxis (the anterior operation, the needle being introduced through the cornea) is the preferable mode, and in performing it the surgeon should be more than usually scrupulous, to employ a needle of the greatest delicacy; to make sure that the shaft will completely fill the aperture made by the point; to confine his first manipulations to a narrow area in the centre of the capsule; carefully withdrawing the needle, so as to avoid the crucial wound generally inflicted upon the cornea. (Mr. J. F. France, p. 317.)

DACRYOPS FISTULOSUS.—Small cysts occasionally occur at the outer margin of the eyelid, consisting of a dilated lacrymal duct, and frequently having an external fistulous opening from which tears trickle on to the cheek. The proper treatment of this affection consists in the artificial formation of a permanent opening for the escape of the tears on the *inner* surface of the upper eyelid. This may be done thus:—Arm a single thread of silk with a needle at each end, both of which successively introduce through the external fistulous opening, making them pierce the conjunctival surface about a quarter of an inch apart, and bring the two ends of the ligature on to the cheek, the needles being removed. Subsequently the bridge of tissue encircled by the loop may be cut out, and the external fistulous opening closed. The most characteristic sign of these tumours is the enlargement which they undergo when the patient cries. Attempts to extirpate them by the knife generally fail, a minute fistulous aperture permanently remaining. (Mr. J. W. Hulke, p. 336.)

EPIPHORA.—The patency of the lower canal is not always sufficient to secure immunity from this troublesome affection. When the wished-for result does not follow the slitting up of the lower punctum, a similar operation should be performed on the upper. (Mr. J. Critchett, p. 341.)

The clumsy method of making a patient wear a style is now suspended. Get half a dozen probes of different sizes, and one made of steel (plated) and grooved at one end, (sold in a case by most instrument makers); also a sharp-pointed knife. Introduce a probe and slit up the canal: use a bougie occasionally afterwards. (Mr. Bowman, Mr. Dixon, p. 341.)

Bowman's Operation.—In the performance of this, one of the greatest improvements in modern ophthalmic surgery, it is better to use a pair of narrow-bladed scissors instead of a grooved director and Beer's knife, as a perpendicular incision is more certainly effected, and it gives less pain and alarm to the patient. The punctum should be expanded by the introduction of a probe or pin, before the scissors are used. When the brow of the patient is very prominent an increase in the curve of the probe passed facilitates its introduction, and avoids the liability to injury of the posterior wall of the duct. It is advisable in all cases to examine carefully whether the channel we have made is adapted with sufficient closeness to the globe to draw off the tears into the sac. If there is thickening of the inner wall of the divided canaliculus—a result of inflammation—remove, as suggested by Mr. Critchett, a bit of the inner lip of the channel near to the caruncle. (Mr. J. V. Solomon, p. 333.)

Excision of the Eyeball.—The instruments, &c., used for excision at the Moorfields Hospital, are a wire speculum, a strabismus hook and scissors, a curved pair of scissors, and a forceps. The operation may however be performed by the curved scissors and forceps only. After removal Mr. Bowman and Mr. Critchett sometimes close the conjunctival aperture by a thread, which is several times passed in and out round the margin of the aperture, and drawn together when all bleeding has ceased. This may be removed on the third day. (Dr. Bader, p. 315.)

Eyelid, *Restoration of.*—The great secret of success in plastic operations about the eye, is to take a flap from the adjoining skin nearly twice as large as may seem to fit the wound made for its reception. The subsequent contraction will then make a good fit. If hemorrhage comes on after the flap has been fitted and you cannot stop it, lift up the flap again and apply the actual cautery to the vessel, then replace the flap and use wire sutures. (Mr. W. Bowman, p. 350.)

Granular Conjunctiva.—The treatment of this affection recommended by Mr. Wharton Jones in his work on "Ophthalmic Medicine and Surgery," consists in scarification of the affected parts every second or third day, and immediately thereafter the application to it of some strong salve, such as the red precipitate : the common unguentum sulphuris of the Pharmacopœia is now recommended as preferable to the red precipitate ointment. It should be insinuated under the upper eyelid, and diffused over the whole conjunctival surface. (Mr. T. W. Jones, p. 358.)

The Application of Gonorrhœal Matter to the eye, in bad and intractable cases of granular conjunctiva has been adopted with excellent results, inasmuch as good sight was restored in one, and very fair sight in the other of two persons, who were nearly blind, and apparently condemned to remain so. The principle obviously is, that of curing a chronic inflammation and its results by exciting a more severe inflammmation in the structure. Of course this mode of treatment should be reserved for the very worst cases, those in which the cornea has become so opaque that useful vision is lost, and in which a fair trial has been given to milder means. (Mr. G. M. Humphry, p. 351.)

Ophthalmoscope.—This instrument has now the following uses. *a.* It will enable the merest tyro to pronounce positively as to existence or non-existence of cataract—a feat which in certain peculiar cases, used formerly to baffle the best-trained observers. *b.* It makes easily evident the very first beginnings of cataract at a period long before the opacity is discoverable by the unassisted eye. *c.* It reveals in cases of true glaucoma the existence of a cup-like depression of the optic entrance, a sign of the greatest importance as to showing a morbid degree of intraocular pressure, and indicating the necessity for iridectomy. *d.* It affords a clear demonstration of the physical cause of muscæ, and sweeps aside the old notions about varicose vessels in the choroid, &c. *e.* In affording indisputable proof of the dependence of many cases of what used to be classed as amaurosis or retinal apoplexy, or punctate extravasations of blood in the retina (a sort of purpura of the retina), it saves the surgeon from the risk of the serious error of prescribing mercurials and antiphlogistics to patients already suffering severely from humoral dyscrasia. *f.* In another class of cases it exhibits to the observer, in the clearest manner, the existence of limited effusions of lymph, in the deep structures of the eye, such effusions requiring for their removal immediate resort to mercurial treatment. *g.* In yet other cases in which with amaurotic symptoms of the most serious kind, the surgeon might have felt bound to attempt something even without a certain knowledge of their pathology, it will show the retina already detached and disorganised, and demonstrate the uselessness of treatment. (Ed. of Med. Times and Gazette, p. 314.)

Strabismus.—The method of operating now followed in London is as follows: Make an horizontal incision in the conjunctiva, at a point corresponding to the inferior border of the tendon of the muscle to be cut, as near the cornea as possible, pass a blunt hook under it, then introduce the inferior blade of a blunt-pointed scissors as far as requisite, and divide the muscle by a succession of of small cuts; the wound may be closed with two silk ligatures. The disadvantage of this operation, though a great improvement on the older methods, is, that a large opening is required for the play of the scissors; this may be avoided by the use of a grooved blunt hook, the limb of which must be short and the curve a right angle, by this the muscle may be drawn down to the opening, and a knife slid along the groove divides it. Thus, a very small wound is required, and it heals by the first intention. It is worth remembering, that the greater the distortion the farther from the insertion of the tendon should the muscle be divided, and vice versa. (Dr. J. S. Coghill, p. 342.)

In cases of recent strabismus, especially in young children and delicate women, it is well to bear in mind the influence of peripheral causes of irritation. A case recently occurred at the Royal London Ophthalmic Hospital in which the squint came on coincidently with the necrosis of the terminal phalanx of one finger, and was wholly cured by the removal of the dead bone. The most common peripheral source of irritations is worms. (Mr. J. W. Hulke, p. 349.)

Strumous Ophthalmia.—The less local interference the better, remembering that it is but the local sign of a constitutional disorder. Eschew nitrate of silver, sulphate of copper, and strong solutions of sulphate of zinc, which are the fruitful cause of granular lids, chronic inflammations of the tarsal margins, ingrowing eyelashes, &c. It is always better to commence the constitutional treatment by an aperient, for which purpose there is nothing like calomel, it stimulates the glandular structure of the small intestines, and induces a free watery secretion; this may be combined with rhubarb and scammony. Our next resources are alteratives and tonics, the mineral acids, quinine, and iron. Warm clothing and well-regulated diet are essentials. (Mr. M. Henry, p. 353.)

MIDWIFERY AND THE DISEASES OF WOMEN, &c.

Dysmenorrhœa.—*Palliative Treatment.*—The agent most serviceable of all, and that on which I chiefly rely for relieving the pain of dysmenorrhœa, is morphia in one or other of its forms. This generally acts better combined with some strong diffusible stimulant, as chloric æther, which forms an admirable adjuvant to the action of the opium. The inhalation of chloroform, when the pain is severe, is often of the greatest use, for it is a singular fact that if you can bring the patient into the anæsthetic condition for only a short time at the very commencement of the attack, she will frequently remain free from pain whilst the discharge continues. There are only two local anodynes from which I have obtained much good results, these are carbonic acid gas and the vapour of chloroform. (p. 418.)

Preventive Treatment.—When dysmenorrhœa is kept up by a state of ovarian or uterine congestion or inflammation, we must try to to reduce these states during the catamenial intervals, by repeated bleedings applied to the hæmorrhoidal vessels, by assiduous counter-irritation to the groins or sacrum, and by all the other usual internal remedies employed against local inflammation and congestion of other isolated organs of the body. If chiefly neuralgic in character, alteratives, and especially mineral tonics, good diet and regimen, and whatever tends to raise the standard of health, will best cure the neuralgia. (p. 421.)

For the gouty and rheumatic forms of the disease, useful results will be found from the administration of colchicum and guaiacum, either alone or in combination with alkalies. Bromide of potassium possesses a sedative action on the sexual organs possessed by no other drug in the Pharmacopœia, and in many cases by its employment you may succeed in warding off attacks of dysmenorrhœa. (p. 422.)

In the treatment of membranous dysmenorrhœa, besides the other remedies usually employed, powdered nitrate of silver may be applied to the uterine cavity by means of an instrument contrived for the purpose, described at p. 424. (Prof. Simpson, p. 423.)

Obstructive Dysmenorrhœa and Sterility from contraction of the Cervix Uteri.—When dilatation is effected mechanically, whether slowly by sounds, or rapidly by sponge tents, relapse of the stricture or contraction, is very apt to return after a time, just as so often happens after the treatment of bad stricture of the male urethra, by merely dilating instruments. The best and speediest mode of cure is to have recourse at once to dilatation of the os by incising it at both sides. For the performance of this operation, an instrument or metrotome is required (see fig. p. 431); this must be introduced as far as the os internum, where the incision begins, at first quite shallow, and then deeper as the instrument is withdrawn, till at the os externum the cervix is cut across in all its thickness. If you cut too deeply in the upper portion of the cervix, you run the risk of wounding some of the veins of the plexus uterinus, otherwise the hemorrhage is not of consequence. The wound must be opened up every two or three days with the finger to prevent union, or the corners of the wound may be touched with a piece of nitrate of silver, with a like good result. There are few operations in surgery "so perfectly simple in their performance, and so entirely satisfactory in their results." (Prof. Simpson, p. 429.)

FISTULA OF ANUS OR VULVA.—Tincture of iodine injected into the canal of an anal fistula will sometimes cause contraction and consolidation in its track, and effect a cure, and this even in severe cases. Sometimes a wire left for a time in the track of a fistula in the vulva will set up such a degree of adhesive inflammation as shall lead to its obliteration. There is always danger of profuse venous hemorrhage in the use of the knife. (Prof. Simpson, p. 413.)

HEAD PRESENTATIONS.—The frequency of head presentations is said to be due to mechanical causes ; the contractions and pressure of the uterus bring the long axis of the child into correspondence with its own, and aided by the movements of the child's lower limbs, direct the latter and the nates into the fundus or more roomy part of the cavity. (Mr. G. M. Humphry, p. 374.)

Passage of the Fœtal Head.—The diameter of the different parts of the pelvis are so managed that the fœtal head undergoes a screw-like twist in its transit. It behoves the accoucheur to be mindful of this in applying the forceps. (Mr. G. M. Humphry, p. 373.)

HYSTERICAL MYALGIA.—Observation has proved that it is rare in cases of hysteria not to find hyperæsthesia either at the epigastric region, high up on the back, or low down on the left side, and in a very great majority of cases in all three situations at once; and any case presenting such combination may most positively be declared to be hysterical. Of course, in hysterical affections, the basis of management is the general treatment, but much may be done for relief of local symptoms by local means, especially Faradisation of the skin, as performed by M. Duchenne. By his apparatus the electrical current is limited to the skin. The hyperæsthesia is usually at once dissipated. Stimulant applications, as very hot cataplasms, dry heat, chloroform, and acetic æther locally applied (which act more as irritants than narcotics,) sinapisms, and blisters will also be of the greatest use in the relief of the local symptoms. (M. Briquet, p. 100.)

PLACENTA PRÆVIA.—A case is related in which, the os being dilated to the size of a small teacup, the separation (as advised by Dr. Barnes) of the whole circumference of the placenta which was presenting, sufficed at once to check the hemorrhage. By further separating the posterior portion of the placenta the membranes were reached, and the presentation discovered to be a footling. The child was delivered in a short time alive, and the mother did well. (Mr. C. P. Stevens, p. 392.)

SCIRRHUS OF THE BREAST.—Sometimes scirrhus of the breast does not implicate the whole gland, but appears as a small nodule. It is a question in such a case whether it is not worth while enucleating the nodule without extirpating the whole gland. Cut through the integuments, enucleate the nodule with the fingers, and divide the connexion with the gland by the knife. Where the gland tissue around the nodule is healthy this operation is sufficient for the present. Bring the skin together by iron-wire sutures. (Mr. S. Wells, p. 41.)

TURNING.—In cases of distorted pelvis, where the antero-posterior diameter is only three inches, or even two inches and a half, provided the os uteri is dilated or dilatable, and the membranes intact, it is the proper practice to turn, rather than allow the head of the child to become impacted in the distorted bony cavity. Even should the head become impacted, there would be no greater difficulty in extracting it after the perforator had been used, than if the vertex had been the presenting part. Many lives will be saved by this practice, and the soft parts of the mother will be less liable to injury. (Dr. T. H. Wardleworth, p. 390.)

In cases of obstruction at the brim of the pelvis where the long forceps are now generally used, turn the child instead. This is Dr. Simpson's advice, but Dr. Figg would extend the use to cases of natural labour, where the patient really requires help. (Dr. E. G. Figg, p. 377.)

VESICO-VAGINAL FISTULÆ.—The greatest improvement in these, as in other cases requiring sutures, consists in using wire sutures instead of silk or thread. Wire does not cause inflammation beyond the *adhesive* ; silk and thread cause *suppuration;* thus pus is absorbed by the thread, and increases the mischief. A bullet or wire may remain for months without causing suppuration. Some surgeons use silver wire. but the *common blue iron-wire of the shops* is the best. It is the *annealed* iron wire known as No. 32. It does not rust. Dr. Aveling, of Sheffield, has had some made by Cockers Brothers, of Sheffield, of a very fine kind for surgical purposes. (Prof. Simpson, p. 399.)

In performing the operation for the cure of this affection, Dr. Simpson recommends the patient to be placed on her elbows and knees, or simply on her left side, and the use of a duck-bill speculum (figured at p. 401) by which a flood of light is thrown upon the exposed fistula. For paring the edges of the opening he uses a straight spear-shaped knife alone, (fig. 3, p. 402) and in using it gives the advice that the edges be levelled off to a considerable distance from the vesical margin, so as to leave as large a surface for adhesion as possible—doing this very slowly and carefully, seeing that the least bit of mucous membrane would prevent the much-desired union by the first intention. For passing the iron-wire thread sutures the needle used is hollow, and the wire, after the passage of the needle through the lips of the fistula, is pushed through the tube, and seized by forceps; the tubular needle is then withdrawn. The needle should be entered from below, and made to emerge above, nearly half an inch on either side of the opening, in order that the edges may be held strongly and steadily. The vesical mucous membrane must never be perforated by the sutures. To consolidate the lips of the fistula and surrounding parts, and keep them perfectly at rest, use an iron-wire splint made by twisting together ten or fifteen strands of the iron-thread into a cord, the ends of which are then doubled over each other, and plaited round into an ovoid or circular form. A number of openings are made among the threads by a boring instrument, through which the ends of the sutures are passed, and the splint passed up to the opening and there firmly applied, the sutures being twisted together and cut off short. Dr. S. considers this preferable to Bozeman's button suture, as it precludes both longitudinal and transverse movement in the wound, whilst Bozeman's allows of slight transverse motion. This splint is removed about the ninth or tenth day. In the after-treatment much stress is laid upon the administration, for some time, of such doses of opium or morphia as shall suffice to keep the patient fully under the influence of the drug. (Prof. Simpson, p. 401.)

MISCELLANEA.

Hypodermic Injections.—Act much quicker than stomachic doses, and they produce a more powerful and effective result. Frequently a narcotic administered in this way is productive of the greatest benefit, whilst an equivalent dose administered by the stomach is entirely useless, and even prejudicial. For the relief of a localized pain it is not necessary to confine the injection to the painful part: the injection may be inserted with quite as striking results in any other part of the body, and thus the tendency to abscess in the part, from repeated injection, is avoided. (Mr. C. Hunter, p. 50.)

Silver Sutures.—Silver sutures seem to be superseding the common ones; they produce hardly any irritation. In cases of fissure of the palate, and other kinds of wounds, they can be introduced and simply *twisted* without requiring any other clamp. They cause a little more pain on being withdrawn: this is best obviated by cutting them as near the wound as possible. Very thin iron-wire is used by some surgeons. (Prof. Fergusson, Mr. Heath, p. 221.)

Snake Bites.—On the western frontiers of the States, where poisonous wounds from rattle-snakes are numerous, it is usual to rely exclusively upon alcoholic stimulants, given in quantities to produce intoxication. When drunkenness is produced, this is generally regarded as evidence of the effects of the poison being overcome. (Dr. Addy, p. 59.)

PRACTICAL MEDICINE.

DISEASES AFFECTING THE SYSTEM GENERALLY.

ART. 1.—ON THE RECESSION OF THE ERUPTION IN SCARLATINA.

By WALTER JESSOP, Esq., Surgeon to the General Dispensary, Cheltenham.

[Mr. Jessop has met with several cases of scarlet fever which proved rapidly fatal from recession of the eruption. His treatment is good, and we would particularly recommend, that when the rash suddenly disappears, Mr. Jessop's plan (which we have followed for years) be adopted, viz., stimulating the skin by mustard, and the general system by stimulants. He relates the following case :]

H. L., a healthy boy, aged four years, had been ailing for some days, and was, on the morning of the 15th of September, suddenly seized with vomiting, accompanied by all the harsher symptoms of impending fever. The bowels had been relieved the night previously ; the urine was scant and high-coloured ; great thirst ; a red and slightly-furred tongue ; dry skin ; with a quick irritable pulse. On examining the throat, one or two slight ash-coloured petechiæ were observed. A chlorate of potash febrifuge was ordered, with strict attention to diet, and a free use of diluents.

During the night the child became slightly delirious ; towards morning he fell into a sleep ; the skin softened, and became moist. At daylight a slight flush was observed, and on seeing him at mid-day the rash was rapidly developing itself ; the pulse less irritable ; the tongue red, but moister, yet with a perceptible streak of brown fur in its centre. The irritation in the throat had not increased ; the bowels had been again relieved, and the kidneys acted well ; in fact, there was not a symptom to excite alarm.

Early the next morning a message came to say the child was worse. On attending to the summons, a remarkable change appeared impending : an unmistakable anxiety in the features of the child ; a slight lividity about the eye ; an unmeaning glare of the pupil ; the tongue dry and furred ; distress of the throat and præcordia ; nostrils clogged, and the rash faded to a brown brick colour ; the skin dry and painfully hot to the touch—all telling fully the terribly rapid change to to low fever, dating from the moment of the recession of the rash. The child was with difficulty aroused; wine and stimulants were at once exhibited, but with no effect. Some cases at Bristol came vividly to my mind, and the remembrance of the temporary improvement in one little patient on the re-appearance for a few hours of a partial rash. It was evident in the case before me that general congestion had occurred, impeding vitality, and that, if unrelieved, the heart must soon wear itself out in its endeavours to revive or force again into circulation the stagnant and poisonous determinations of blood that were evidently taking place. I at once ordered flannels to be steeped in hot mustard-and-water, made of the thickness of milk, wrung out, and applied round the throat, over and round the chest, abdomen, upper arm and thigh; over that again a dry flannel, and this attempt at superficial reaction was assisted by the continued administration of stimulants.

In the course of half an hour the child became restless, and, on moving the flannels, I saw that capillary circulation was slightly established. The flannels were reapplied, and in an hour afterwards the pulse seemed to soften and become fuller; the child cried, an involuntary discharge of highly ammoniacal urine took place, and I had the gratification later in the day of seeing reaction fairly set in, and my little patient with a renewed and favourable chance of existence.

During the night the child had broken but natural sleep, took a little thin arrowroot and wine, and at intervals stimulant drops, composed of Battley's bark, hydrochloric acid, and sulphuric ether. Shortly after daybreak nearly a pint of urine was passed, with very sensible relief to my patient. Progress for the first few days was necessarily slow; but no complication at any time arose to threaten or seriously hinder convalescence, and the little sufferer made a good and wholesome recovery.

The narration of the two other cases would be but relating the same thing over again. The treatment was equally successful.

Remarks must necessarily be short. It is evident that during the stage of eruption the capillary circulation is intense, and that on any sudden or unnatural recession of the eruption some or all of the great organs of the body must become surcharged with poisonous blood, and that the heart, if unassisted, will labour, and labour in vain, to revive and restore a healthy balance in the circulation. It is at the best but a clumsy contrivance to exhibit stimulants internally to doubtfully prolong the labours of the heart, if we do not avail ourselves of appliances that may, without uselessly exciting the great centre of circulation, assist in relieving and restoring its capillary and terminal system. My own experience is necessarily but small in a healthy locality like Cheltenham; but I have a deep impression that in many cases of eruptive fever, we possess in the application of such stimulants a valuable aid in relieving the heart by restoring capillary circulation and nervous power in the skin, and so assist in preventing local determinations of a dangerous tendency.

[We are persuaded that in these poison cases we cannot begin stimulants too early, especially the compound spirit of ammonia, Remember that a prostrating poison has been imbibed, and almost a certain antidote is ammonia, given early: assist this, if necessary, by wrapping the child in a steamed blanket, with several folds of dry blankets over the wet, so as to cause a vapour bath.]—*Lancet, Jan.* 8, 1859, *p.* 29.

2.—*Quinine in Scarlatina.*—Dr. Morrison, of Laurenceville, Virginia, has witnessed several severe epidemics of scarlatina; and of all the various means of treatment he has had recourse to, speaks highest of quinine. He begins with it on the occurrence of the first symptoms of the disease, and repeats it every two or three hours, until the system is brought under its influence. He gives also, occasionally, a few grains of blue pill, to gently move the bowels, and mops the throat with a strong solution of nitrate of silver.—*North Amer. Med. Chir. Review.*—*Med. Times and Gazette, March* 19, 1859, *p.* 297.

3.—*On Aborted Fevers.* By Dr. W. Stokes, Dublin.—[In an interesting discourse on clinical medicine, Dr. Stokes gives out an opinion which may be novel to many, but which will explain the course of many diseases. He says,]

Under the action of epidemic and of endemic influences, the purely local and accidental diseases take on some at least of the characters of the essential conditions; and I believe it will yet be found, that a large number of cases of disease hitherto classed as purely local affections—simple inflammations, if you will—not supposed to have relation to fever, or any other essential condition, will turn out to be, in reality, only examples of diseases secondary to a fever, arising, as it were, *unconformably*—that is, at a period much earlier than is the rule, and, by the operation of some law still obscure to us, causing or followed by the disappearance of the general malady. This I offer with diffidence; but every day increases my belief, that many cases of apparently local and accidental diseases are but examples of *Aborted Fevers*, and that they are endued with more or less of the characters of the parent or antecedent affection, which has disappeared so mysteriously. If this be so, the advantages we obtain by the study of a case of fever have relation, not only to every case of the pestilences which destroy man by wholesale, but to an infinite number and variety of local diseases, whose relation to essentialism has not even been suspected.—*Dub. Hospital Gazette, Dec.* 1, 1858, *p.* 354.

4.—ON SCARLATINA AND ITS TREATMENT.

By Dr. E. Bishop, Devonport.

If we would have a science, and the art founded thereon, to become more and more pure, we must direct our studies in the way which our present acquaintance with the science points out to us. If the way be one of theory, we must theorize; if it be one of practice and observation, we must observe and investigate. Medicine is essentially a science of facts. The store of facts is gradually accumulating, and has already, indeed, increased to such an extent as to render the teaching necessarily more and more practical, and to show that things, not words *en masse*, form the material with which the practitioner's mind must be supplied. The more medicine is made to partake of the real, the more prominent and brightly will it shine.

The foregoing I saw in print some time since, and the remarks appear applicable to the following. It is desirable that contributions to the medical press, however trifling they may appear to some, should be published, especially respecting any new or successful treatment in serious diseases. It is the duty of the practitioner to record his method of treating disease, even if it does not appear strictly orthodox, or in accordance with the prescribed methods. If we had to rest entirely upon the authority of even our best authors, we should fall miserably short; for the numerous opinions given as to the nature and treatment of this and other diseases are so contradictory and conflicting as to mislead the matured as well as the juvenile practitioner. Or, to quote the language of Dr. Gilmour, "My young brethren in medicine must not trust implicitly to what they read in books; many of them are truly valuable and trustworthy, but others (and of these there is a large number) are written to suit a purpose, and contain trash."

I beg to state as briefly as possible the treatment I have adopted in this disease during the last nine months. There is nothing original in it, so far as it relates to myself. I know friends who have tried it with marked success. Scarlatina has been rife in this town for the last nine months, and has proved fatal to a large number of children belonging to all classes of society. In many families, one, two, and even three, have succumbed to it. I applied to the registrar for the exact number of deaths from this disease in the three quarters ending March, June, and September, 1858, and he has been kind enough to supply me with a return, by permission of the Registrar-General. In the first quarter of the present year the deaths from scarlatina reached 23; in the second, 44; and in the third, 27, in children under ten years of age.

In fifty-one cases of scarlatina scattered over the town, in children varying from two to ten years of age, my plan of treatment has been tonics from the commencement—(i. e., from my first visit)—either the citrate of iron, or the tincture of the sesquichloride, in the usual full doses; and I have had every reason to be satisfied with the result, having lost but one case. I made no difference in the *plan of treatment* even when serious complications presented. In many the fever was intense, the inflammation of the throat severe, and pain in swallowing very considerable. Four children in one house, in Cannon-street, had scarlatina anginosa in an aggravated form, being attended with an acrid discharge from the ears and nostrils. In one case deafness has remained nearly permanent. I entirely discarded the application of strong caustics to the throat and tonsils, which many years' experience has taught me is injurious in very young children, and calculated to do more harm than good, to say nothing of the injury and difficulty attending the operation. External applications to the throat I found most beneficial—either the compound camphor liniment, oil and hartshorn, or turpentine sprinkled on a strip of flannel, previously wrung out of hot water, and applied several times during the twenty-four hours. Inhaling the steam of hot water gave much relief, as it generally does. The children I have been called upon to treat, have belonged to the poorer class; the diet necessarily simple; in severe cases, broths, beef-tea, milk, jelly, and wine were recommended, and procured if possible. One gratifying result in the treatment of scarlatina with iron, as far as my experience carries me, is that the children, with few exceptions, escaped that serious and frequent sequel—anasarca.

I have seen two cases of diphtheria following scarlatina during the epidemic, in children four and six years of age. The first child had been convalescent a week or ten days, and I must confess, I could not understand the cause of the relapse. After a few days, I suspected diphtheria; the child would never allow me nor the parents to examine the state of the throat, although rough usage was resorted to more than once or twice. During the time it suffered extreme prostration, and was supported by wine and beef-tea; it also took a mixture containing the tincture of the sesquichloride of iron. The child ultimately coughed up the membrane characteristic of diphtheria. A fit of vomiting and coughing came on at a time when it appeared beyond hope; but when the membrane was released, the child was relieved, and gradually rallied.

A remarkable case under my care was that of a boy aged four years, belonging to the Royal Naval and Military Free Schools. I first saw him twelve weeks ago from the date of this communication; he had then scarlatina anginosa, from which he recovered sufficiently to enjoy a walk. About a fortnight after his recovery his mother requested me to see him, as he had (to use her own words) "pimples coming out over his face and body." On visiting him, this proved to be variola discreta. He had been successfully vaccinated, judging from the cicatrices in his arm. The little fellow suffered severely; he had not regained his strength from the debilitating consequences of the previous illness. He was kept up by wine, beef-tea, ammonia, and bark, as maturation of the pustules went on but slowly. He recovered from this attack, but not sufficiently to return to school, when I was requested to visit him, as he had hooping-cough, which was and is now epidemic in this town; and this being complicated with pneumonia, terminated his existence a few days ago. There was something remarkable in the fact of this child having three of the most serious and fatal diseases of childhood in the short period of three months. One little girl who was in the habit of going to the house of the deceased is now under treatment for variola.

I trust the tonic treatment of scarlatina with iron may have a trial elsewhere, and prove as efficacious and successful as it has been with me. I conceive it is far better to prove by facts than to judge and condemn without a trial, simply because the treatment does not harmonize with the doctrine laid down by our popular authors and preceptors.

[We think that to deplete or in any way to lower the system in any of these specific fevers is improper. We have never given iron in these cases, except in erysipelas, but prefer ammonia, which we give very early, with the same views as Dr. Bishop. The disease is a poison. Nature is attempting to throw it off by fever. This fever, therefore, is a conservative power, and as soon as it shows symptoms of want of power, give ammonia early in scarlet fever. Do not be guided by the frequency, but by the power of the pulse. Often the more rapid the pulse, the less power.]—*Lancet*, *Dec.* 4, 1858, *p.* 573.

5.—ON THE IDENTITY OF SCARLATINAL DROPSY AND ACUTE MORBUS BRIGHTII.

By Dr. W. R. Basham, Physician to the Westminster Hospital.

[The remarkable differences in epidemic diseases at different periods of their prevalence, is well illustrated by the history of scarlet fever. In some years the majority of cases are mild and favourable; but in others, (and the present visitation is particularly illustrative), for the most part the mortality is high.]

In the more malignant form of the disease, sore-throat is a very prominent symptom; and it may be doubted whether a great number of the fatal cases recorded as diphtheria have not been scarlatina anginosa, or scarlatina maligna. In the scarlatina anginosa, the sore-throat is the symptom which alone attracts attention; and if the peculiarities of the inflammation be not closely noted, an inattentive observer might view the throat disease as a simple tonsillitis, or be ready, when unfavourable symptoms followed, to classify it under the title of diphtheria.

In the true scarlatinal sore-throat, the tonsils, soft palate, uvula, and back of pharynx, are involved in a diffuse inflammatory redness of a brilliant hue; the tongue, partaking of this elevated colour, and oftentimes being furred, and the enlarged papillæ, elevated in colour, appearing through, the similitude to a strawberry has been imagined, and hence "strawberry tongue" has been accepted as the characteristic of this stage of scarlet fever. The throat, however, not only presents an inflammatory redness, but there is considerable tumefaction, sufficient to impede deglutition and speech, and, extending to the external parts, produces swelling of the sub-maxillary glands, and stiffness and painful distension of the integuments about the throat. Specks or points of ulceration make their appearance on the tonsils, and a viscid, tenacious mucus is formed, which adheres to the parts, and sensibly increases the difficulty of deglutition. This viscid secretion may be mistaken for the croupous pellicle which is formed in diphtheria; the specks of ulceration discoverable beneath this viscid mucus will, however, distinguish the scarlatinal from the diphtheritic inflammation. The eruption comes on late and imperfectly, and may be, and is, often overlooked. Within ten days or a fortnight, the urine becomes scanty, dark-coloured, and albuminous. In many, the presence of blood is unmistakable; in others, the urine acquires but a dirty or sooty appearance. This condition of the urine will, I believe, if any doubt remains, distinguish the scarlatinal from the diphtheritic disease. By some writers in the weekly medical journals the urine in in diphtheria has been described as albuminous. But, with every respect for these communications, I should venture to classify the disease as scarlatina rather than diphtheria. It is this evidence of the disordered state of the renal organs which constitutes the element of danger in these cases, and which eventually leads to the development of the most unmanageable of all the forms of albuminuria—acute morbus Brightii.

It is a singular fact, that the activity of the renal disorder bears no proportion to the apparent intensity of the original febrile poison. For it may be said that inversely as the manifestation of the symptoms of scarlet fever is the susceptibility to the renal disorder; for the more highly developed the scarlet rash, the more complete will be the proof of the elimination from the blood of the febrile poison; and the less characteristic the rash, the more certain that the poison lurks in the system, unheeded and undestroyed, and eventually to implicate the kidneys in a disorder fatal in proportion to the tardiness with which it is recognised. In this type of cases, the eruption is slow to show itself; and in place of a diffuse efflorescence, it occurs in patches, far less intense in colour than in the simpler and milder form of the disease. The constitutional disturbance is oftentimes great; but cases are frequently met with where, ultimately, a fatal termination by renal disease takes place, in which the primary disorder was not marked by any symptoms of urgency. The patient appears to convalesce favourably, but, slowly and insidiously, evidence of lurking mischief becomes apparent. In some cases there may be symptoms of a secondary fever about the fourteenth day from the date of the sore-throat, some restlessness, loss of appetite, and chilliness. But these symptoms are sometimes wanting, or so feebly pronounced as to be unnoticed. Frequency of micturition, scanty, dark-coloured urine, and a puffiness of the face, may be, and often are, the first symptoms noticed by the patient. General anasarca of the surface follows, with a pallor so peculiar, of such alabaster whiteness and purity, as to become almost a specific feature of the disease.

[Frances G., aged nineteen, was admitted, suffering from general dropsy of the surface of the body. Four weeks previously she had scarlatinal symptoms, and was told she had that affection, but she had no distinct eruption on the skin. The urine was highly albuminous, and contained blood discs; large fibrinous blood casts, and some scattered renal epithelial cells. Under treatment her symptoms were much relieved; but ultimately she died comatose, the coma coming on suddenly, and preceded by changes in the urine characteristic of the unfavourable progress of the disease.]

Post-mortem examination twenty-eight hours after.—The external surface of the body was but slightly anasarcous. The pleural and abdominal cavities contained a small quantity of orange-coloured serum. The lungs were free from pleuritic adhesions, but were slightly œdematous. The heart was large; it weighed thirteen ounces and a half; there were several maculæ albidæ both on its anterior and posterior surfaces; the cavities of the heart, as well as the valves, were natural. The liver was healthy. The left kidney was the larger of the two: it weighed seven ounces and a half; it was irregular in shape, considerably lobulated above and below, very convex anteriorly, somewhat flattened posteriorly. The capsule was semi-adherent, and when removed, the kidney displayed a finely granular (sabulous) surface, pale in colour, with a few stellar vessels scattered over it. The interior, on a section being made, displayed the usual fine granular exudation infiltrating the whole structure, fraying out the base of the cones, and contrasting in colour with the pale-red striated appearance of this pyramidal portion of the organ. The right kidney weighed five ounces and three quarters; the cones were more deeply injected than the other kidney, but in other respects the morbid conditions were similar, the disease not having advanced to the same point, one kidney being usually behind the other in progress.

A careful microscopic examination of these kidneys was made. The white deposit surrounding the cones, and constituting the mass of the disease, was composed of abortive cells, embedded in what appeared to be a fine granular exudation. This granular matter pervaded the whole organ, and was principally interstitial in regard to its relation to the tubes, as but little tubular structure could be discovered in it. The Malpighian bodies, however, appeared stuffed with this exudation, and the few tubes which were teazed out of the deposit, appeared blocked up with it. The epithelial cells along the walls of the tubes, at the base of the cones, appeared undisturbed, but compressed by the contents of the canal. The straight tubes at the apex of the cones were free open canals, the epithelium presenting a natural appearance; but here and there a large straight tube was observed choked with fibrinous coagula, of a brownish-yellow colour.

This case illustrates two important facts in the pathology of the kidneys. First, the relation which scarlatinal dropsy bears to acute morbus Brightii; and secondly, the character of the structural changes which at first impede, and ultimately destroy, the function of the kidney.

It was at one time doubted whether the renal disorder after scarlet fever had anything in common with those forms of disease described by the late lamented Dr. Bright, which the concurrent opinion of European pathologists now designates as morbus Brightii. It scarcely required the genius of a Rokitansky to identify them; yet that great pathologist has not hesitated to recognise in scarlet fever one of the most energetic causes of the acute form of Bright's disease. The symptoms during life are the same, and a microscopic examination of the renal structures establishes the identity of the morbid process beyond all objection. The student in clinical medicine should carefully observe and compare the progress of the symptoms in a case analogous to the present one in its origin, and one which has apparently arisen from exposure to cold and wet, and which is rapidly running an acute course. Frequent examination of the urinary sediment in both cases will exhibit the similarity of the matters thrown off from the renal tubes, and the identity of the changes proceeding in them; and a comparison of the structural changes in the kidney after death will complete the proof. In both, the kidneys will be beyond the natural weight, large, pale, and exsangueous, with a few scattered, star-like, vascular points. The cones will present a remarkable contrast of colour to the surrounding deposit, varying from a pale pinkish madder, to a deeper tone of madder red; they display the linear markings of the straight tubes frayed out at the base, fancifully compared to a sheaf of corn.

Microscopically examined, the whole structure of the organ, tubular as well as interstitial, is seen infiltrated with a product which fills and chokes the tubes, obliterates the Malpighian capillaries, permeates the interstitial plexus of vessels, and eventually offers such an obstacle to the course of the blood and circulation through the kidneys as to bring within limits incompatible with life the excretory power of these organs. The mode of death, in both cases, is clearly traceable to this cause; for, in the great majority, the patients die with symptoms referable to a poisonous agency operating upon the nervous centres, and coma, with or without convulsive movements, is usually the indication of the fatal termination by uræmic poisoning.

As the renal disorder which succeeds to scarlet fever is identical with the acute form of morbus Brightii, it follows that the principles on which these cases should be treated must be the same. They may be summed up in a few words. To lessen the watery or dropsical state of the blood, and to diminish the local blood stasis in the kidneys. The first is obtained by acting briskly on the intestinal track of mucous surface, by which a large amount of fluid is rapidly eliminated from the system. The second object is secured by calling into activity the functions of the skin by diaphoretics, warm clothing, and warm or hot-air baths. The functions of the skin are vicarious of those of the kidney, and whatever augments the first lessens the activity of the latter. The congestion of the kidneys is further alleviated by dry cupping, and occasionally by abstracting blood by cupping from the loins; but the cases are exceptional which will require the abstraction of blood. If these objects can be successfully attained—indicated by the disappearance of the dropsy and the absence of blood from the urine—no time should be lost in placing the organism in a condition to regain those qualities and powers, the loss of which are most plainly manifested by the impoverished state of the blood. Amongst medicinal remedies, the ferruginous are the most essential; and amongst these, the tincture of the sesquichloride of iron is the most valuable and efficacious. But chalybeates are useless without a well-ordered diet. Nutrition must, therefore, be promoted, and it may be aided by a limited allowance of wine. Our best-directed efforts are, however, often frustrated by the intensity of the disease and rapidity of its progress. And this case furnishes an example of the fatality of this disorder, notwithstanding the favourable results which remedies seemed to produce; but it also teaches the value of microscopic examination of the urinary sediment from time to time; and we are taught that by a careful attention to its revelations the insidious progress of the disorder may be demonstrated and recorded even while the progress of the patient, in all other respects, appears to continue satisfactory.—*Lancet, March* 19, 1859, *p.* 283.

6.—ON THE PATHOLOGY OF DIPHTHERIA.

[Last summer, Dr. T. Laycock, of Edinburgh, put forth the theory, that the diphtheritic exudation depended on a parasitic fungus in the oïdium albicans. This theory, Dr. W. R. Rogers, Physician to the Farringdon General Dispensary and Lying-in Charity, considers as erroneous. He says,]

Dr. Laycock has fallen into an error, as the oïdium albicans is not found in diphtheritic exudation, unless in exceptional cases, and then only because the membrane has taken on an acid, putrefying change, this parasite requiring an acid decomposing pabulum whereon to flourish, as is well proved by Berg and Gubler. In France, all know that this fungus distinguishes the *pseudo* from the true diphthérite, the microscope being its test. Wherever the oïdium is found, it is muguet or thrush, *plus* whatever disease, acute or chronic, it may be; as I stated in my paper read before the Medical Society. Borax, Vichy water, or solution of nitrate of silver, speedily removes such *pseudo* membranes. I have only found the oïdium on one out of fourteen specimens, and this was fifty-six hours after the patient's death, though carefully examined twenty-four hours before. I may add, that the leptothrix buccalis mentioned by Dr. Wade is constantly to be found in the buccal mucus of healthy persons, if properly searched for. Dr. Harley, of University College, has stated to me that fatty acids are frequently mistaken for this fungus. True diphthérite, in all the specimens I have examined, is a granular and cellular exudation, with some epithelial mucous corpuscles; and sometimes there may be found with it pus and blood-cells. I have but rarely distinguished fibrillæ, or what looked like these. Under the exudation, the sub-mucous tissues and mucous membrane are usually thickened, and the mucous follicles are enlarged, and filled with the same matter, which can be squeezed out, and from which the exudation seems to be produced; but the cause of this change of mucus into membrane I do not at present desire to enter upon.

[Dr. Laycock in reply observes:]

If I understand Dr. Rogers' views aright, as reported in the 'Lancet' of the 22nd inst., he not only thinks diphtheria to be a blood-disease, (which seems a probable theory,) but that, *as such*, it cannot be a parasitic disease. Comparative pathology teaches, however, that this conclusion is, at least, doubtful. The muscardine (on epizootic disease of the silkworm) is due to a species of fungus like that which infests the potato, called, after its discoverer, the *Botrytis Bassiana*, and the sporules are described as being *reproduced in the blood* of the insect *when it becomes acid*, while the filaments and mycelium appear on the respiratory surfaces—that is, at the outlets of the tracheal tubes. (Compare the engraving of the blood-appearances in M. Ch. Robin's valuable "Histoire Naturelle des Végétaux Parasites," &c.) Again, the fungus of the common house-fly, named mycophyton Cohnii by Lebert, after Dr. Cohn, its first investigator, is a mould, or oïdium found in the blood, abdomen, and sometimes in the intestines of the insect at the beginning of autumn. (Lebert, Virchow's "Archiv." &c., vol. xii., 1857.) Its first symptom observed is a milky appearance of the blood. It is found in the blood in all stages of development, from the simple minute spore, or cell, to the full-grown mycelium. It is found in like manner in the fluids of the intestines, and appears externally as a mould. Flies thus affected may be often seen sticking, with outstretched wings, to the window-panes, at the end of summer and beginning of autumn. These are by no means solitary instances of parasitic blood-disease. Indeed, hæmatophyta, as Lebert terms these microscopic blood-parasites, infest the blood of several classes of insects. References are given by Lebert *loco citato.* The same fact also holds good as to the vegetable parasites. The common wheat bunt attacks the wheat, and makes it *look*, and be, sickly, when not the slightest trace of fungal threads can be found; yet it is quite certain that something capable of reproducing the species is present at the time, either in the intercellular passages, or protoplasm. This I state on the authority of Mr. Berkeley. ("Introduction to Cryptogamic Botany," 1857, p. 65.) That eminent observer is also of opinion, that the Botrytis infestans is the fungus which is the cause of the potato disease. He says a crop may be seen to grow in a few hours from the cut surface of a diseased potato, even although the foliage exhibited no traces of the parasite; and that the walls of the cavities of the carpels of the tomatoes are often covered with the fungus, though there is no communication with the external air. These are facts which ought to make us hesitate, at least, in coming to the conclusion, in the absence of all inquiry, that a parasitic disease cannot be a blood disease in man. The same kind of objection applies to the conclusions drawn from microscopic investigations by Dr. Rogers and Dr. Harley. A hundred examples of wheat infected with the tilletia caries (the bunt) might be examined in succession, or even a thousand, and no fungus detected; but that would obviously be no proof that the diseased condition of the grain was not due to the parasite. It would simply signify that the diseased grain had not been examined at the proper stage of development of the fungus. And I think the fact stated by Dr. Harley and Dr. Rogers, as to one of the twelve cases they examined, that the oïdium albicans was developed twenty-four hours after no trace of it could be found, is significant of what may be, and I think is, the rule in the living body—namely, that certain conditions are necessary as to development, food, temperature, and habitat, for the complete evolution of these organisms. There is no doubt that an acid condition *accompanies* the production and growth of the oïdium in muguet, and of vegetable parasites on the skin in skin diseases; but it is not so clear that the acid is the *cause* thereof. On the contrary, we know that the production of acid is itself due to fungi, as in the acetous fermentation. Dr. Lowe, of King's Lynn, differs from Gubler and others, as to this acid theory, and I would particularly call Dr. Harley's attention to the account of Dr. Lowe's interesting experimental researches on these parasitic fungi, published last year, in the 'Transactions of the Botanical Society of Edinburgh.' The title of Dr. Lowe's paper is significant of the caution with which microscopic researches should be made. It runs thus: 'On the Identity of Achorion Schönleinii and other Parasites with Aspergillus Glaucus.' Dr. Lowe believes he "raised' aspergillus glaucus from the parasitic fungus (the achorion) of a case of porrigo lupinosa treated in the Royal Infirmary here, and he got good yeast (torula cerevisiæ) from both the aspergillus and penecilium, which might, therefore, be got from the favus-fungus. Dr. Lowe infers, in fact, from his experiments, that all the fungi which produce skin diseases are referable to these two genera which produce yeast; and conversely, that yeast may, under favourable circumstances, produce skin disease. The *leptothrix*, so common on the foul tongue, is probably to be classed with these variable forms. These statements show, at least, how much is yet to be done in natural history before the true morbific action of these parasitic fungi can be determined. One thing, however, is certain, that the parasites of the potato, vine, apple, and silkworm—all prevailing simultaneously—are almost identical with the oïdium albicans; and considering how readily a slight difference in the form of these minute organisms may be induced by differences in the food or habitat, it is probable that they are really identical in origin; and this coincidence of spread cannot but awaken a strong suspicion as to the relationship of the cause of diphtheria to that of the epidemics of the silkworm, vine, potato, &c.

That these parasites are sometimes powerful irritants of the living tissues is, I think, fully established, both from the history of muguet, and other circumstances. And although French writers speak of *pseudo*-diphthérite, the accuracy of the term may be questioned, for the exudation appears externally on ulcerated or exposed surfaces as well as internally in both muguet and diphtheria alike. An interesting case of vaginal blennorrhœa due probably to oïdium albicans introduced from without may be found in Virchow's 'Archiv. für Physiologie,' vol. ix., p. 466. The case is communicated by Dr. E. Martin, of Jena. The labia were swollen; the vagina of a bright red, studded with enlarged papillæ, and covered with star-like patches of membrane like those of the mouth in muguet, which were found to contain the O. albicans. A patient in the next bed (both were puerperal patients in hospital) had subsequently active fever, abdominal tenderness, and O. albicans of the mouth, with muguet. Dr. Jos. Ebert, of Wurtzburg, found the O. albicans in the crop, stomach, and intestinal canal of a hen. The upper portion of the latter was intensely red.

It is usual to speak of the characteristic pellicle as if it were peculiar to diphtheria; but this is by no means the case. It is not unfrequently seen in cases of typhus and relaxing fever, sometimes in yellow fever, and, I believe, in all fevers. A series of carefully conducted experiments made with a thorough knowledge of cryptogamic botany, on lower animals, so as to show the real pathological origin and effects of these parasitic fungi would be very valuable. It would be absolutely necessary, however, that the animals experimented on be first brought as nearly as possible under, and into, the same conditions as persons are in who are attacked by the disease. I am inclined to think that it would probably be shown that these parasites may act either through the blood or locally only.

I may observe, in conclusion, that antiseptics and parasiticides appear to be the most efficient remedies in diphtheria. I can speak very favourably of the value of the tincture of the sesquichloride of iron (an antiseptic) and hydrochlorate of potass. The latter, taken alone, will sweep away the pellicle in a few hours. Hydrochloric acid is also useful. Borax, which is so efficient in muguet, would probably be serviceable in diphtheria. And, I may say, that I have found a concentrated solution of borax as useful a local application in favus as any that I have tried. It is also serviceable in certain forms of lepra, applied externally, and, I believe, from its action as a destructive parasiticide. There are other remedies of this class, as the linimentum æruginis, the chloride of zinc, chloride of lime, &c. Early blood-medication is by far the best treatment, inasmuch as local applications, like the nitrate of silver, cannot have any effect on the air-passages, where the greatest mischief is done. Calomel and blisters seem wholly contra-indicated; indeed, the latter must be considered far more likely to be hurtful than beneficial. Wine, in moderation, is likely to be useful, and makes an excellent gargle diluted one-half.—*Lancet, Jan.* 22 *and* 29, 1859, *pp.* 98, 120.

7.—ON DIPHTHERIA.

By J. P. M'Donald, Esq., Bristol, and H. Lambden, Esq., Coningsby, Lincolnshire.

[We remember attending numerous cases of this disease at least twenty years ago, but since that period we have seen cases only now and then. Lately, however, it has again become more prevalent, and to many surgeons appears to be a new disease. We have often thought that it was nothing more than a malignant form of scarlet fever, spending its violence on the throat and fauces, instead of the skin. The following account by Mr. M'Donald is very good:]

From the commencement of the present year until now I have been in constant attendance on cases of diphtheria and scarlatina. Although the diseases are clearly distinct, yet they occasionally occur together. In the early part of the year, I was sent for to visit a young gentleman with scarlatina anginosa. A younger brother, some time previously, had visited a house in the neighbourhood where the family was said to have the "black fever," one of whom was then lying dead. A few days after the lad in question was seized with vomiting, and was observed to be very red all over the chest and face. The next day, however, he appeared as well as ever, and nothing further was thought of the matter, until his brother was seized. This case went through all the stages of violent delirium, ulcerated throat, suppuration of the glands of the neck, and dropsy, and, after a period of about two months, terminated in perfect restoration to health. Twenty-four hours after his seizure, a sister, aged nineteen, who hitherto had been in rude health, was attacked with violent vomiting, and was shortly after in complete scarlatina, and went through similar stages as in her brother's case, until apparent convalescence, when she complained of voracious hunger, and then violent pain over the abdomen, which was followed by tympanitis, muttering delirium, and death in the third week of her illness.

A few hours after this lady sickened, a younger sister, aged thirteen, whilst taking her tea (in my presence), was suddenly attacked with severe vomiting; after which, she fell exhausted on the bed, became burning hot all over, and a deep, dark rash, of a mahogany colour, appeared in six hours over the body; there were muttering delirium, impossibility of deglutition, and death in eighteen hours. Two or three days after this death, another sister, aged seventeen, was taken at midnight with a sort of stupor, followed by violent vomiting of the most offensive matter, of a greenish-yellow colour. The fever then set in, and the scarlet rash appeared. The throat was speedily affected. Upon examination, I found it of a different character from her sister's and brother's. The whole of the soft palate, uvula, tonsils, and pharynx were of a glassy redness—they completely shone; a clear and transparent curtain of viscid fluid hung in a film across the mouth, and patches of greyish-white matter, like rough leather, were dotted here and there. The discharge from the nares, of an irritating, thin, yellowish matter, was so excessive as to exceed belief, large towels being saturated with it in a few hours. After three days, during which time there was no delirium, the rash changed to a deep mahogany colour, the feet and legs became perfectly black and cold, and large bullæ were formed on them, containing a putrid fluid. Upon looking into the throat, I observed a large piece of the false membrane, which had extended all over the previous redness, quite loosened from the surface, and, with some difficulty, I got it away, leaving a bright, raw, and red condition of the parts behind. This false membrane had the appearance of thin tripe after maceration in hot water for several hours. Its removal was followed by great relief in breathing and restoration of deglutition; but typhus symptoms soon set in, death of the lower extremities, up beyond the knee, was apparently complete, and death followed in about six days from the commencement.

I judged these dreadful cases to be scarlatina anginosa, in two instances; scarlatina maligna, in the girl aged thirteen; and this last mentioned case to be scarlatina anginosa, with the addition of true diphtheria.

Since that time I have had many opportunities of seeing both diseases, separately and combined. The ulcerated throat, in the worst cases of scarlatina, is quite different to the fungoid membrane of diphtheria; the slough of the former often leaves an indentation upon the tonsil, and is also mostly confined to the tonsils, whereas the false membrane of diphtheria, when detached, leaves the surface, to which it has been adherent, of a bright red, with an appearance not unlike raw meat.

I have used various modes of treatment in this terrible disease—diphtheria; I believe, nearly all that have been from time to time thought of by medical men, but the best line of action I find to be as follows:—After a clearance of the bowels with calomel and rhubarb, I order strong beef-tea, wine, and above all, Bass's pale ale; the patients express themselves much relieved in the throat as it is swallowed, and feel greatly exhilarated after taking it. One gentleman drank twelve pint bottles of it in the course of a night. The medicine I find of most use is an ounce of the compound tincture of quinine, taken in wine-and-water, every four hours. As a local application, (and it is to the personal inspection of the throat, and the personal use of the applications, that we may hope to benefit the sufferer,) I find the best and most efficacious is equal parts of honey and *concentrated* muriatic acid, applied with a probang to the whole of the false membrane, about every sixth hour. As a gargle, borax and honey, mixed with a little brandy-and-water, is very useful; and, after the stripping off of the false membrane, a gargle made with tannic acid and water, affords great comfort.

[The following remarks by Mr. LAMBDEN, of Coningsby, are good. He says:]

I find, as a topical application, the nitrate of silver in substance indispensable, wherever the disease can be reached by it; and where the pharynx and other parts more remote are implicated, a strong solution of that substance (say a drachm to an ounce) must be applied, by means of a camel-hair pencil, or piece of sponge; a gargle, composed of a strong solution of chloride of soda being, at the same time, used with great frequency. In children too young to use it properly, I apply it by means of a small glass syringe.

As an internal remedy, I look upon chlorate of potash as the sheet anchor; and this, combined with hydrochloric acid, according to the following formula (in use, I believe, at St. Thomas's Hospital) I have found invaluable:—Chlorate of potash, two drachms; hydrochloric acid, one drachm; water, eight ounces; half an ounce for a dose, every one, two, or three hours, according to the urgency of the symptoms. The chlorate of potash should be first finely powdered in a mortar, the undiluted acid be poured upon it, continually stirring, and as soon as the whole of the powder assumes a yellow colour, and the fumes of chlorine begin to arise, dash in the water, by which the escape of chlorine is at once arrested, free chlorine being thus retained in the solution. I have administered chlorate of potash, in this form, from the first appearance of the disease, in my practice; and such has been the good effect attending its administration, and such is my confidence in it, that I have never felt justified in resorting to any other medicine. I have, in many instances, combined the sesquichloride of iron; but I really cannot say that I have found any benefit arise from its admixture. Wine, in full doses, oft repeated, beef-tea, and, in fact, *every kind* of nutritious matter that can be got into the system, are essentially requisite.

I cannot agree with Dr. Kingsford "that mercury is especially contra-indicated." I am of opinion, and my experience of its administration bears me out in it, that where the disease extends to the larynx and the trachea, and the symptoms become "croupal," calomel, with small doses of antimony (one grain of the former with one-eighth of a grain of the latter) is imperatively demanded, even in those cases which look most unpromising for its exhibition; the system being of of course, at the same time, supported by stimulants, &c. I consider too great stress cannot be laid upon the injurious effects of blisters and mustard poultices, especially in the more severe forms of the disease; they cause immense suffering to the patient, adding greatly to the nervous depression, and I much question whether death, in some instances in children, may not have been accelerated by their application.

[The reader will find a full description of this epidemic in the Cyclopædia of Practical Medicine for 1834, vol. iv, p. 176, by Dr. Tweedie.]—*Lancet, Nov.* 20, 1858, *p.* 538.

8.—*On Diphtheria.* By Dr. W. A. Bryden, Mayfield.—[Dr. Bryden wrote a paper on this subject in the 'British Med. Journal' of Nov. 21, 1857. He here gives us his treatment.]

First, as to the cases in which I think guaiacum to be most useful: I use it in all cases, whether of "diphtheria", properly so called, or of what in this neighbourhood we have styled "cynanche maligna". I combine it with the chloride of potash, and use a gargle of chlorine at the same time.

In cynanche tonsillaris, I order a warm bran poultice, sprinkled with vinegar, to be applied externally, and give the guaiacum in ten-grain doses, with three or four grains of nitrate of potash, every three or four hours.

The following prescription is one which I have frequently used in cynanche maligna and diphtheria, the dose being for an adult:—

℞. Pulveris guaiaci ℈ij; sacchari purificati ʒj; pulveris acaciæ ℈ss; aquæ ℥vj. Misce, et adde potassæ chloratis ʒss. Fiat mistura cujus sumantur cochlearia ij magna 2dâ quâque horâ.

Instead of the application of the solid nitrate of silver, which I think often does harm, I always use the following gargle, or one similar to it:—

℞. Solutionis sodæ chlorinatæ ʒj; sacchari purificati ʒiss; aquæ ℥vj. M. Fiat gargarisma sæpe utendum.

I see that other gentlemen, writing since my paper was published, have been recommending both the chlorate of potassa and the chlorine in the treatment of diphtheria. Have any of them tried these in combination with the powdered guaiacum? and, if so, with what result?—*British Medical Journal, Nov.* 6, 1858, *p.* 927.

9.—ON LOCAL TREATMENT IN A PARTICULAR FORM AND STAGE OF DIPHTHERIA.

By Dr. J. S. Ramskill, Physician to the Metropolitan Free Hospital.

[The class of cases to which the following observations refer are not those of the very malignant kind, in which great swelling and difficulty of breathing and swallowing occur early, but those in which these functions remain tolerably free until the end of the third day.]

Now the rule of treatment generally received and adopted is this: that as soon as the diphtheritic patch is seen, it is to be destroyed by strong muriatic acid in honey, or rubbed out with solid nitrate of silver; and the application is to be repeated next day, if the disease should have extended, or, more correctly speaking, if new should have occurred around the old deposit, or in the neighbourhood. After this second application, I believe the strong caustic is laid aside, and the throat is touched or sponged out, as the case may require, with nitrate of silver in solution, from sixteen grains to one drachm to the ounce, once or twice a day; and other appliances are adopted, which need not be mentioned.

Now I do not object to the first part of the treatment, although it has not seemed to me the best possible remedy in every case, and in more than one it seemed to increase morbid action, and quicken the appearance of every undesirable symptom. The cases in which it does act well are those in which there is little swelling, or effusion into the surrounding tissues and under the diphtheritic patch, with no marked tendency to glandular engorgement. And this brings me to the immediate object of this paper. It is to the local treatment of cases where, on the third day, the disease is still, although slowly, progressing—where the fauces are being blocked up, and the posterior nares scarcely free—that I would draw attention. Perhaps I cannot do so better than by giving an outline of a case, one of three which have lately come under my notice:—

A., a young lady, aged 15, of good condition in life, robust, and not subject to any of the influences supposed to be favourable to the development of the disease. I saw her on the third day, and found her in bed, tranquil, capable of speaking a few words together, breathing comfortably without noise, swallowing freely and without pain anything given to her; with a cool. soft skin, and silky pulse, beating 100. The submaxillary and cervical glands were much swollen. She could open her mouth tolerably well, and by means of a spoon a very distinct view of the interior was obtained. The soft palate was projecting, strongly convex on to the base of the tongue; the swelling eased off gradually, terminating on the hard palate, within half an inch of the front teeth; it was covered in patches with the characteristic false membrane, and everywhere exuded copiously a jelly-like, tenacious fibrin. By drawing forward and pressing down the tongue, the margin of the false palate could be distinctly seen, with its thick, swollen edge dipping down into the pharynx, and the uvula hanging in the centre, pale-red and free from disease, or at most very slightly œdematous. The tonsils were swollen, and agglutinated to the edges of the soft palate, and so matted with effusion of false membrane and fibrin as to be indistinguishable from the latter.

According to the testimony present, the disease was decidedly progressing; there was more exudation and the swelling was greater than six hours before. It was resolved to remove as much of the exudation as possible, no force being used, and to apply a strong solution of nitrate of silver, eighteen grains to the ounce. In four hours the breathing became noisy, not from implication of the larynx, but from blocking of the posterior nares, from increased swelling at the back part of the velum, and effusion of fibrinous secretion spotted with false membrane, and the corresponding difficulty of ingress of air by the mouth. Other measures, as inhalation and gargling, were adopted; and I may mention that the former always gave most relief. On the fourth day the report was, that the noisy breathing had considerably diminished; the patient had slept two hours and a half; at intervals of half an hour, she had taken medicine, food, and wine, but with more difficulty than yesterday, and once the fluid returned by the nostrils; the anterior part of the palate was less swollen, and the false membrane and fibrine secreted in much less quantity; but the breathing was much more noisy than yesterday, and the cervical and submaxillary glands much more swollen; general symptoms, pulse, &c., as before. It was felt that the caustic application had done good in one direction and mischief in another; and the throat was mopped out, after removing gently all the exudation possible, with a solution of nitrate of silver ten grains to the ounce.

For some hours the breathing was less noisy, but the difficulty recurred. Next day the report was: no sleep, increased difficulty in swallowing, and considerable accumulation about and behind the fauces; injection by the nares returned the same way; occasional smothered cough; the cervical, submaxillary, and neighbouring glands immensely swollen. The mouth could not be opened wide enough to examine the throat. Laryngeal spasm occurred once, and was overcome by inhalation; again in two hours, and overcome by the same means. Sonorous respiration followed, and in an hour a third spasm of the glottis ushered in the fatal event.

I know some persons may fail to see any connexion between the application of the caustic and the increased swelling and aggravation of symptoms; and in this case it was contended by my consultant that the local treatment was the best possible under the circumstances, and that the fatal event would have occurred as soon under any other mode of treatment. I confess to having thought so at the time, but increased experience has convinced me that any treatment which causes rapidly-increasing swelling of the cervical, submaxillary, and neighbouring glands, is bad, and sure to be attended by corresponding extension of the disease within and below the fauces, by declension of power, and increase in the difficulty of breathing, swallowing, &c. And the reason is obvious enough. In fact, in all cases where the first application of caustic has shown the tendency to excessive glandular enlargements, the local treatment cannot be too soothing and gentle. The treatment consisted of quinine in three-grain doses, with ether and muriatic acid, and given in rotation with strong beef-tea and wine, so that every hour the patient took medicine, food, or wine.

The treatment in which I have most faith, on or about the third day, under the circumstances above mentioned, is the following:—Let as much of the exudation as is easily accessible and loose be removed. A carefully-strained infusion of cammomiles is to be made, to which is added a few drops of creosote or of liquor calcis chlorinata (two drachms to fifteen ounces), or liquor aluminis. It is to be used by means of Coxeter's laryngeal syringe, or any other apparatus the practitioner may devise, so as to avoid the unrest of tissues created by gargling. The laryngeal syringe is admirably adapted for children, who after a time will use it themselves, although of course not very effectually. If there be much accumulation behind the velum, and discharge passes by the nares, it is an exceedingly useful plan to syringe the throat through the anterior nares with the same infusion. Most of the fluid comes back by the mouth, carrying with it *débris* of membrane and foul secretions. An effort of deglutition will almost always be made, but if some of the infusion be swallowed it can only do good. Inhalation from a hot infusion of the same has seemed to give more ease to the patient than any other application. Washing out of the throat should not be insisted on more than three or four times a day: the inhalation as often as the patient may wish. The chlorinated lime, in addition, should be used if there be much fœtor; the alum when that is only slightly apparent. The throat outside should be surrounded by a poultice composed of the strained cammomile flowers, and changed four or five times in the twenty-four hours. Internally, I use quinine in cammomile infusion, with muriatic acid and ether, and endeavour to produce cinchonism. I use cammomiles, having in view its reputed efficacy in erysipelas and phlegmonous inflammation. In one case only, where hæmaturia existed, I gave tincture of acetate of iron, with acetate of potash in small quantity, and the patient did well.—*Lancet*, *Feb.* 19, 1859, *p.* 182.

10.—IS "ULCERATIVE STOMATITIS" A DIPHTHERITIC AFFECTION?

(Case under the care of Mr. Hutchinson, Metropolitan Free Hospital.)

Any one who reads carefully Dr. Fothergill's 'Account of the Putrid Sore-throat,' as it prevailed epidemically in his day, will not feel any doubt that he is describing the identical disease which Bretonneau afterwards designated as diphtheritic. To the latter author we owe the observation that the supposed sloughs are not portions of gangrenous mucous membrane, but exudations upon its surface. Great credit is due to him for the demonstration of this fact, however simple it may appear, for some of the aspects of diphtheria are certainly most deceptively like those of true gangrene. Bretonneau carries his assertion out not only as regards the throat affection, but also applies it to those forms of mouth disease in which the cheeks and gums of children become the seat of so-called ulceration, and which are known to us as "ulcerative stomatitis." These he asserts are forms of diphtheria, and the supposed ulcers are merely very superficial abrasions coated over more or less thickly with false membrane. We are not aware whether any English observers have as yet attempted to test the accuracy of this assertion, but we have this week to record a case which bears upon it.

Henry T., aged eight years, a pallid, delicate boy, was admitted on March 1st at the Metropolitan Free Hospital, under Mr. Hutchinson's care on account of ulcerative stomatitis in its most typical and acute form. His right cheek was greatly swollen, tense, and hot. On its inner surface was a large ulcer, which extended from near the angle of the mouth to behind the level of the last molars, and was nearly an inch broad in its middle. It was covered with ashen-grey pultaceous material, and its edges were of vivid red. A most fetid odour was exhaled, and the gums of both the upper and lower jaw were inflamed, and bled on a slight touch. The condition had existed a fortnight, during which time the boy had been under the care of the surgeon to the parish. The aspect of the disease made it almost impossible to believe, but that there was an ulcer at least a quarter of an inch deep, and filled with decomposing slough and putrilage. One gentleman who saw the case, at once exclaimed, "*Cancrum Oris.*" It was not, however, an example of true cancrum oris, but one of ulcerative stomatitis, so well described by Dr. West, and other writers. Mr. Hutchinson wishing to test the correctness of Bretonneau's assertion, attempted with forceps and a small scoop to remove the material occupying the ulcer. The upper surface of this was soft and diffluent, but its under layer was firm and coherent, and might be peeled off. With care it was separated from the mucous membrane in all parts, almost without causing bleeding. The surface thus exposed was of mottled red colour, with little white spots here and there, as if the membrane dipped into open follicles, and could not be got away, *There was no deep ulceration whatever;* and whether there was even destruction of the epithelial layer was uncertain. Examined under the microscope, almost immediately after its removal, the membrane was seen to consist of an immense number of small cells (like those of pus or mucus, but smaller, and free nuclei, which were made to cohere by an obscurely fibrillated material. Very few epithelial cells were contained in it. Placed in a solution of chlorate of potash, portions of this membrane became soft, and lost their cohesion.

It is well known that for the form of stomatitis above described, chlorate of potash in full doses is almost a specific. Wishing to ascertain whether its virtues are due to its local or its constitutional influence, Mr. Hutchinson ventured in the above case to direct that it should be used only topically. A lotion containing six drachms of the chlorate to twenty ounces of water, was ordered to be used freely as a mouth wash every two hours, the boy being strictly enjoined not to swallow any. He was treated as an out-patient, and in order that the experiment might be a fair one, was ordered to live just as he had been accustomed in every respect. No internal medicine was prescribed. To prevent any ill consequences ensuing from the neglect of the latter, he was to be carefully watched from day to day.

On the day following the commencement of the mouth-wash, the improvement had decidedly begun. A considerable portion of the sore was clean, and the induration of the cheek was much less brawny. Over the posterior half of the sore, however, a new false membrane had been effused. This was again detached, and the treatment continued.

On the fourth day all fetor of the mouth had been removed, and the sore was almost clean, and had begun to diminish in size. It was now evident that superficial ulceration did really exist over the whole surface.

At the end of a fortnight (the wash having been regularly persevered with) the mouth was well. The ulcer had healed from behind forwards, and a red spot the size of a split pea at its anterior angle was all that remained. The boy still looked pale, and steel wine was now prescribed.

Conclusions.—*a.* That Bretonneau's assertion as to the essential nature of ulcerative stomatitis is perfectly correct.

b. That the effusion of a coherent and thick layer of false membrane over a very superficially abraded surface being the chief feature in this disease, "buccal diphtheria" would be a more suitable designation for it than that which it now bears.

c. That this form of diphtheric disease is curable by the local application of the chlorate of potash only.

d. That the fetor of breath almost always present in these cases is due to decomposition of the exposed layers of the false membrane, and not to either phagedæna or gangrene.

Suggestions.—*a.* Might it not be worth while to examine the saliva during the internal administration of large doses of chlorate of potash, and ascertain whether its constituents are appreciably altered? Its extraordinary efficacy in curing stomatitis would be easily accounted for were it ascertained to be eliminated by the salivary glands, and thus kept in constant application to the affected parts.

b. Why not try the chlorate as a topical application in cases of pharyngeal and tracheal diphtheria? By means of a sponge probang and a larynx syringe, a solution might without much difficulty be brought in contact with these parts. A saturated solution should be used, and freely and frequently applied.—*Med. Times and Gazette, March* 19, 1859, *p.* 290.

11.—*Albuminuria in Diphtheria.* By Dr. W. F. Wade, Physician to the Birmingham Dispensary—[What explanation does morbid anatomy give of the fact, that many cases of diphtherite of seemingly the most trivial character prove unexpectedly fatal? Dr. Wade determined on the first opportunity to seek some answer to the above.]

The very first post-mortem examination revealed important organic changes (in the kidney more especially) which I had not been led to anticipate; following up this clue, I tested the urine carefully and systematically during life, and found that indications of impairment of the renal functions were constantly precursory of an unfavourable termination. These are the cases in which the patient, to all appearance free from risk, is suddenly seized with croupy breathing, and is in a few hours beyond hope.

It is self-evident that this gives to albuminuria in diphthérite a much more important significance than if it were confined to severe cases.

Dr. W. R. Rogers, in a letter which appeared in your journal of the 22nd ult., says, "I may add that the leptothrix buccalis mentioned by Dr Wade is constantly to be found in the buccal mucus of healthy persons, if properly searched for."

Of this fact I was perfectly aware, and I have in no way supported the pathological views of Dr. Laycock, although, from the above extract, especially if taken in conjunction with the context, it might be inferred that I was disposed to do so.

I embrace this opportunity to impress most earnestly upon practitioners the extreme necessity of making (morning and evening) an examination of the urine in cases of diphthérite, whatever their degree of severity. If albuminuria be present, the prognosis should be carefully guarded, though not necessarily of the most unfavourable chaacter.—*Lancet, Feb.* 5, 1859, *p.* 147.

12.—REMARKS ON DIPHTHERIA.

By Richard Cammack, Jun., Esq., Bennington, Boston.

This is a disease of recent growth in England, and has never been fully treated upon in books. The French have been accustomed to it many years, and call it diphthérite from the Greek διφθεριτης, or διφθεριας—one clothed in skins, form διφθερα, skin or leather.

They have given it this name from its tendency to form false membranes over the part affected. But as croup, cynanche maligna, and scarlatina anginosa, have all the same disposition—viz., to effuse coagulable lymph, to slough, ând to form and throw off deciduous deposit, I think the term is vague and not specific enough. It does not hit the nature of the disease.

From observing numerous cases, and tracing the mildest attacks to the most malignant, I have arrived at the conclusion that it is distinctly *herpetic*; and, therefore, would call it herpes malignum.

I have no doubt the disease has occurred in England, in isolated cases, from time to time; but its specific nature has never been discovered. I remember assisting at a post-mortem examination of a girl who died in University College Hospital, under the care of Dr. A. T. Thompson. I never saw another case like that till now; and I feel certain that was diphthérite.

The pathology of diphtheria, then, rests with the French; and I have not seen that they fully agree.

Diphtheria comes on, in many instances, very suddenly, like cholera and influenza, and erysipelas, without any warning symptoms; in others, there is soreness of the throat, like tonsillitis, or of the nares, like catarrh, or there is pain in deglutition, like pharyngitis, or cynanche maligna: shiverings are very irregular.

It varies in extent from simple herpes of the lips or nose, which are covered with vesicles which burst, ulcerate, and heal in two or three days, to the most extensive inflammation and sloughing, and ulceration of the cheek, the palate, and the pharynx; and more in children than adults. It extends into the larynx and trachea, and kills by asphyxia.

In the mildest form there is a tendency to ulceration beneath a white, loosely-attached membrane, which consists of epithelium coagulated with viscid mucus and lymph. In worse cases its vesicular nature can be distinctly traced for a few hours after its commencement, from the large patch within the cheek or upon the gum, which will slough like cancrum oris, to the more diffused bullæ upon the soft patch and pharynx. I believe that in some instances it extends to the gullet and stomach.

The specific cause is atmospheric,—as in typhus, in cholera, in influenza and potato-rot. Debility, cesspools, malaria, and all nuisances predispose to it; and irregularities of regimen, cold drink when heated, sudden changes of temperature, and over-exertion, are exciting causes. And as all these produce debility, so is the disease itself adynamic. Patients who have recovered from a mild attack complain of weakness many days after.

The principles of treatment are antiseptic and tonic, stimulating and nutritious. The capillary system should not be engorged with fluids; neither should anything evaporating be applied to the skin: the latter is an exciting cause, and the former prevent the distended capillaries recovering their tone. Blisters inflame and ulcerate; leeches debilitate and their bites slough; and strong purgatives cannot be borne.

Diphtheria was epidemic in this district last year in November and December, has been so again since last July, and is still prevalent. Deaths have been numerous in the adjoining districts, as many as five having died in one house. Numerous cases fell to my care last autumn, and three children died of croupal symptoms. Since then all have recovered, and I attribute their recovery to the plan of treatment which I beg to subscribe.

Treatment.—1. A temperate, dry, well-ventilated room as can be obtained, no one being allowed to sleep in it except an attendant. Crowded bedrooms and animal effluvia are an exciting cause.

2. A calomel purgative, varying in strength according to the age and size of the patient; and in children, where symptoms of laryngitis appear, a rapid exhibition of the chloride of mercury, such as a grain to two grains every hour till the breathing is easier, and then every three or four hours, till the false membranes are loosened, the bowels evacuate green stools, or vomiting. Care is needed not to carry the mineral too far, but it can be borne in proportion to the strength of the patient and the sthenic form of the attack. Children who have been healthy, and are teething, have most inflammatory symptoms.

3. The decoction of cinchona with hydrochloric acid, varying the dose of the latter from one minim to ten every four hours, in from a teaspoonful to two tablespoonfuls of the former.

4. Gargle with chloride of sodium and vinegar, a tablespoonful of each in a teacupful of hot water; also inject this up the nostrils when they are becoming obstructed. This excels all other gargles; it relieves the breathing and the fœtor, and causes the ulcers to heal.

5. Apply the stick of nitrate of silver to every part where false membrane or exudation can be seen. By means of Dr. R. Quain's tongue depressor, one can see far and wide; but when the patient will not submit to this, and when the disease spreads beyond the reach of the caustic case, a probang and a clean sponge well saturated with a strong solution of nitrate of silver will answer.

6. Rub the external fauces with compound iodine ointment night and morning; and where erysipelas may appear, apply the stick, and lay on a plaster of strong mercury ointment.

7. Keep the room and all else sweet and clean.

8. A nutritious diet is necessary. A little mutton every day; boiled milk, rich gruels, and beef tea, with hot port-wine and water, (half wine, with sugar and lemon,) for all above ten years; and warm milk-and-water for minors. All things should be taken warm. Cold drinks are an exciting cause.

The disease is not infectious, except, perhaps, under extraordinary circumstances.

Since I wrote the above remarks, I have seen many cases. I am convinced the malady is herpetic, and, therefore, would have it called so. It is malignant frequently, therefore herpes malignus anginosus would fully specify the disease. I have no wish to encroach on your space, but beg to observe, that the medical gentlemen of this neighbourhood are much at varience as to the nature of the disease, and that it has been very fatal. I have the 'Lancet' from the commencement, and have read the lectures of most since Sir A. Cooper's and Mr. Abernethy's; but I have never seen a full description of this epidemic.

[It is a mistake to say that this is a new disease; it will be found described in most works on diseases of children under the name of "Diphtherite." We witnessed a dreadful epidemic of this sort in Leeds, at least twenty years ago. It seems to us to be nothing more than malignant scarlet fever, which attacks feeble subjects in bad air, and which is not eliminated from the skin. By giving ammonia and beef-tea early, and keeping the skin softened by the steamed blanket, we have been very successful in these cases. Dip a blanket in hot water, wring or squeeze the hot water out, wrap the patient in this hot blanket with several folds of dry blanket over the wetted one, keep the patient an hour in this steam bath, and next rub him rapidly dry, and wrap him comfortably in dry blankets; keep him up with ammonia, and good nutritious broths.]—*Lancet, Oct.* 30, 1858, *p.* 461.

13.—*Turpentine in Diphtheria.* By Dr. E. Perrey, Marden, Kent.—A great deal has been written of late about diphtheria; and I have little doubt that several cognate affections of the throat—very important and very often fatal—have been confounded with it, more especially the ulcerated sore-throat, and the malignant, aphthous, putrid sore-throat, so graphically described by Burns, in his "Principles of Midwifery," page 665, sixth edition. These are, however, very distinct diseases, and quite the reverse of diphtheria, in which there is no loss of substance whatever, but simply an ill-conditioned membrane, exuding a plastic lymph. It is a pseudo-membranous deposition on a peculiarly inflamed surface; having a tendency to spread with great rapidity like erysipelas, and like it attended with a fever *sui generis.* This fever is one of great debility and malignancy, varying, however, much in intensity; destroying sometimes in twelve hours, at others lasting several days. There is no loss of substance whatever, as in the before-mentioned diseases.

But it is of the treatment I wish more particularly to speak. I have tried almost everything that I know to have been recommended, and have failed; and, perhaps, we often shall fail under any treatment; but I think it proper to mention a treatment which has been successful with me in three or four cases of late. It is for a child of from two to six years of age. Ten minims of the spiritus terebinthum every second hour, and five grains of the ammoniæ carbonæ every second hour, the child taking the turpentine one hour and the ammoniæ the next hour.

I rub up ʒij. of the spr. terebinth. with the yelk of an egg, and add enough syrup to make a ʒxij. mixture. One teaspoonful in milk every two hours. Then dissolve ʒj. of the ammon. carb. in ʒxij. of water, and give one tea-spoonful every two hours also in milk.

Besides this the child takes port-wine, porter, and beef-tea, or wine with the yelk of egg *ad lib.* I have not found in any of my cases strangury caused by the turpentine. The patient dislikes it of course, and it requires a determined and attentive nurse; but I have found the plan very successful, and I speak of those cases where decided croupy breathing and fits of suffocation have made their appearance.

I was induced to try the turpentine from having noted its effects, when given as advised by Mr. Carmichael in cases of iritis in broken down constitutions where mercury could not be used; and where there is so great a tendency to the effusion of lymph into the chambers of the eye. We all know too how effectual it is in other diseases—acting like mercury in many respects—but stimulating instead of debilitating—and hence its appropriateness in diphtheria, where mercury, I believe, hastens the fatal result. I now have recourse to no sponging the fauces with strong acid, or the argenti nitras, which I used to do, punishing a great deal and doing very little good.—*Med. Times and Gazette, March* 5, 1859, *p.* 245.

14.—ON AGUE.

By Dr. J. A. Easton, Professor of Materia Medica in the University of Glasgow.

[The ague poison is evidently cumulative. Nature tries to throw it off by violent paroxysms, but fails. Quinine and arsenic are the only medicines to be depended upon. The effect of quinine is remarkable, and almost certain, not only to cure the attack, but to prevent the patient being attacked at all when in malarious districts. This is well shown in the course of this paper by the effects of this medicine on the sailors engaged on the African coast under the medical care of Dr. Bryson. Quinine seems to have some different and more specific effect than a simple tonic. Dr. Easton says :]

A tonic, I would define to be a medicine which, commencing its action on the stomach itself, very likely by stimulating its nerves and and muscular fibres, improves the appetite, strengthens digestion, and favours assimilation, helps, consequently, to make good blood, which in turn furnishes good tissues—a medicine which adds vigour to the circulation, which promotes secretion when defective or represses it when morbidly increased, which braces the nerves, imparts tone to the muscular system, and renovates the power and functions of the whole animal economy, over every department of which it exercises a pervading and permanent influence. Further, a tonic, unlike a stimulant, produces its effects only on the diseased, the infirm, and the convalescent. It does not make a strong man more strong, though it makes a weak man more robust. Now, many vegetable bitters have these properties in perfection, and yet exercise little, if any, power over those diseases which are characterized by periodical exacerbations; and as has been well remarked by Dr. Headland, it is worthy of notice that this observation applies more especially to some of the more common bitters, such as quassia, calumba, and gentian, which owe their efficacy not to alkaloids, but to neutral principles. But the ague poison is not overcome through the induction of any of the effects described above, as being characteristic of tonics, and which description, I venture to state, will be found to accord with faithful observation. Nay more, it has been shown by Dr. Bryson, to whose valuable observations and suggestions I shall advert more fully in the sequel, that quina, administered to sailors in perfect health, while cruising in certain latitudes in which ague was prevalent, has acted as a prophylactic to such persons, and has enabled them to pass unscathed along those pestilential shores, whence noxious exhalations had often proved disastrous to others, who had not subjected themselves to similar precautionary discipline. Few will maintain that an effect like this is produced by a mere tonic, which, as I have already stated, exercises no power for good or for evil over persons who are in the normal condition; and therefore, while we must admit that quina is an excellent tonic, considered purely as such, we must believe that it is something more than a tonic, and that when it cures ague, it does not conduct its febrifuge operations in accordance with, what I may be allowed to call, tonic principles.

In the second place, a careful and an unbiassed observation of the effects of quina in the treatment of ague will convince us, that the salt does not operate by inducing catalysis. Catalytic agents, administered as remedies, being foreign to the economy, cannot be assimilated, are therefore poisonous, and must be expelled from the system. Hence they are found in most of the excretions, particularly in the urine and saliva, in some instances along with the noxious substance against which they had exerted their power. Now it would be unfair to deny that, in one respect, quina sometimes conducts itself after the manner of catalytics, inasmuch as in some exceptional cases, and only when a large dose of the salt has been taken, headache, flushing of the face, and other symptoms of cerebral disturbance occasionally ensue. No doubt in this aspect the medicine may be said to exhibit something like toxic properties; but there is this essential difference between it and the recognized catalytics, that whereas the injurious effects of the latter are constant, those of quina are comparatively rare, being seldom met with except when the medicine has been administered in a very large dose. Moreover, there is this other characteristic distinction between quina and arsenic, and the catalytics generally, that while the latter are utterly inassimilable, and must consequently be excreted, the alkaloidal salt is apparently in great part retained and incorporated, or is converted into some other material, for chemical analysis has either failed altogether to detect quina in the excretions, or in quantity so small as to be out of all proportion to the amount which had been administered. This statement, however, it is but fair to notice receives a seeming contradiction from the observations of M. Briquet at the Académie de Médecine, as these are reported by the "Paris correspondent" of the 'Med. Times and Gazette,' in the number of that periodical for 2nd Aug., 1856. According to the "correspondent," M. Briquet "has found that quinine passes very quickly into the urine. In half an hour after it has been ingested it is found in the urine, but the complete elimination of a dose requires many days. Urine seems to be the only secretion with which quinine is eliminated." I have not had an opportunity of seeing the original paper, nor have I observed any other reference to it, either in corroboration or disproof of the statement now advanced. So far as I know, therefore, the observation of M. Briquet has not been confirmed by others; but even supposing it to be correct, the results do not, in my opinion, imply catalytic action on the part of quina in the cure of ague, but rather the reverse. It is well known, as I shall show in the sequel, even from my own very limited experience, that quina, when it does cure ague, generally counteracts it very rapidly, a fact which is quite inconsistent with the statement that "a dose" requires "many days" for its elimination. It will, of course, require many weeks to eliminate *several* doses; but long before such a period, nay, even in a single day and from a single dose of quina, ague has frequently vanished. The statement of M. Briquet, however, demands, and I have no doubt will receive, attention. Meanwhile, and in support of the non-catalytic theory, I submit the following extract from the valuable work of Dr. Headland on the action of medicines. "Quina is not necessarily excreted from the blood. That is, it appears that when given in small or medicinal doses, it is not excreted at all; but when given in an excessive or overdose, quina, like other restorative medicines, will make its appearance in the urine. Wöhler and Frerichs could not at first discover quinine in the urine, but they obtained proof of its presence there after administering a large dose. Dr. W. Herapath, of Bristol, made a very careful analysis of the urine of a patient suffering from tetanus, to whom forty grains of the officinal disulphate were administered in the twenty-four hours. In half a pint he discovered an amount of quina equivalent to 1·884 grains of the above salt. And supposing two pints of this secretion to be voided per diem, this indicates 7·536 grains as excreted from the system, out of forty grains ingested."

It being admitted that the phenomena of ague are the manifestations of a peculiar poison in the blood, and it being undeniable that quina cures the disease, it appears to be a fair inference, that the medicine, in its relation to the poison, exhibits the behaviour, and in some respects answers the description, and deserves the name of, an antidote. It does not militate against this assumption, that we cannot detect in the excretions any new compound which has been formed between the bane and the counter-acting agent. The poison itself is subtle and intangible; its pernicious operations are conducted in a laboratory which is not open to human inspection; and therefore, while in the nature of things we may not have direct proof of antidotal influence, such as is afforded in many instances where other poisons are rendered inert, we have the evidence of undoubted salutary change, and of unquestionable analogy in its favour.

But while the benefit of quina in the treatment of ague, actually existing, is so well known and availed of as to render further comment on that subject superfluous, it may not be unprofitable, while it will certainly be illustrative of one of the propositions set forth in this paper, to direct attention to the prophylactic virtues of the medicine, and to the suggestions regarding the manner of using it, which have been made by our former townsman Dr. Alexander Bryson, an old alumnus and graduate of this university, and now one of the deputy inspectors of Her Majesty's navy. Convinced by long experience and close observation of ague, that the poison may develop itself a considerable time after malarious latitudes have been departed from, Dr. Bryson suggested that quina should be administered as a prophylactic, "and that its use should be continued, not only while the men were exposed in unhealthy localities, but *for at least fourteen days after they returned on board*, in order that the antagonistic influence of the medicine might be kept up until the incubative period of the disease had expired." In accordance with these suggestions, a strong spirituous solution of amorphous quinine was mixed with several pipes of wine, in the proportion of four grains of the salt to an ounce of wine, and of this mixture an ounce was administered and repeated, and continued according to circumstances. Abundant proof of the success of this treatment is furnished in the reports of the several medical officers on the African Station, under whose superintendence the quinine was administered as a prophylactic agent. From these reports I make one or two extracts:—

"The gig from Her Majesty's ship *Teazer* was detached in the Boom-kittam; quinine wine, in the usual dose, was given night and morning, and continued for fourteen days after its return. A boy (William Roberts), from dislike to the quinine, took at most but three doses. He was the only one of the boat's crew that suffered from fever, which occurred ten days after leaving the river. While coaling at Sierra Leone an extra allowance of quinine was given to each man; Mr. ——, however, placed no faith in its preventive influence, and would not take it, and he alone suffered an attack of fever, which proved fatal."

One extract more:—

"Thirty-six men belonging to the *Water Witch* were employed at the attack on Lagos; they were in the river four or five days, and, with the exception of three, all took quinine wine while there, and for fourteen days after they left it. Of the whole number, five only were attacked with fever, namely, the three men who did not take the wine, and other two, who most imprudently exposed themselves to the sun, and bathed while much heated by violent exercise."

In strong contrast with these results, and conclusive, in my opinion, as to the prophylactic virtues of quina against ague poison, it is stated in one of the reports that a whole boat's crew was seized with fever, no wine having been administered, in consequence of the whole stock having been lost while crossing the bar of one of the rivers on the east coast of Africa. The importance of Dr. Bryson's discovery can scarcely be over-estimated, not only in its application to soldiers, sailors, and others engaged in the public service in malarious localities at a distance, but also to persons nearer home who require to be in inconvenient proximity with what are popularly known as the fenny districts. I think further, and in conclusion, that a consideration of the peculiar circumstances now detailed under which quina was administered, as well as the success which attended administration, will convince us that the medicine, in some inexplicable manner, produces such an alteration in the system as enables it to bid defiance to the contact of that malarious poison which for centuries has displayed its distinctiveness and its power in the phenomena of ague. It will not be denied that the mysterious entity, whose unseen exhalations send forth desolation and death, has been disarmed of its potency by a palpable counteracting agent; and thus we are justified in maintaining the opinion already expressed, that counter-action sometimes takes place without catalysis, though catalysis always implies counter-action.—*Glasgow Med. Journal, Oct.*, 1858, *p.* 268.

15.—REMARKS ON THE CONNECTION OF NEURALGIC AND GOUTY AFFECTIONS.

By Dr. J. A. Easton, Professor of Materia Medica, in the University of Glasgow.

[Dr. Easton has met with several cases of neuralgia, and sciatica in particular, which were so evidently connected with the elimination of oxalate of lime in large quantities in the urine, that he thinks the two symptoms more or less dependent on each other. Although this is not a new remark, yet we have perhaps not sufficiently attended to it. He says:]

In the first place, looking at neuralgia from a general standpoint—

ascertaining the previous habits, manner of life, and present condition of those who are the subjects of it—listening, it may be, to the tale of hereditary transmission, or hearing of the number of victims in the same family circle—noticing the dyspepsia, the occasional hypochondriasis, the unhealthy appearance of the skin, the irritability of temper, the periodicity of the pain, and the variations produced in it by different states of the weather—grouping, I say, all these circumstances together, and drawing from them a general inference, we are warranted, I think, in regarding the neuralgic condition as one of the manifestations of the gouty diathesis. The words gouty diathesis I use advisedly, and in express and avowed contra-distinction to what is both popularly and professionally known as a fit of the gout. This diathesis, I suspect, is of more frequent occurrence than is generally supposed; and the opinion of Sir Benjamin Brodie cannot be too strongly impressed on our minds, that many persons labouring under "what are esteemed local diseases are, in reality, suffering from the influence of gouty poison in the system, though they may have nothing which would commonly pass for gout." The quaint remark of Captain Grant, quoted by Dr. James Begbie, "that there dies not one of a thousand of the gout, although more die gouty," is, I believe, in strict accordance with accurate observation, and has been subscribed to, in as many words, by Dr. Gairdner, one of our best writers on gout, who repudiates the notion that we should not consider a man as gouty unless he has suffered under a regular fit of the disease; and states, moreover, his belief, that the gouty diathesis is often very perfectly developed in individuals "who never see"—he does not say who never feel—"its local manifestations," expressing, at the same time, his conviction, that the strumous is not more frequent than the gouty habit. My belief, then, is strong, that neuralgia is a manifestation of the same poison which is popularly, though erroneously, supposed to develop itself exclusively in the great toe of the aristocratic, the luxurious, and the sensual.

The opinion, in the second place, that neuralgia is a manifestation of the gouty diathesis, gains strength from the observation of the particular tissue in which the pain appears to be situated. The notion, I believe, is very generally entertained, that in neuralgia, the irritating influence, whatever it may be, is exerted not directly on the nerve itself, but on its neurilemma or fibrous investment. Now, while I am aware that the gout poison, or at all events that which is looked upon as its material exponent, may take up its residence—or to express it more in accordance with the views which I have already offered—may be eliminated and deposited from the blood in any organ or tissue of the body—in the eye, in the ear, the stomach, and even in cartilages and bursæ—while all this is conceded, I am of opinion, in opposition, I admit, to high authority, that the attacks of gout are more frequently concentrated on the fibrous than on any other tissue of the body, and that, in that particular structure, the poison more especially produces those objective appearances with which every one is familiar. Hence, among the victims of gout, the diffused redness which is so often seen, and the severe pain which is so often felt, in those parts of the body where fibrous tissue prevails, over the dorsum of the foot for example, and in the situation of aponeurotic expansions generally. In making this statement, I by no means wish to homologate the opinion entertained by many, that these particular appearances and sensations, in such localities, are no signs of gout proper, but are the characteristic phenomena of the so-called rheumatic gout, a sort of pathological cross between gout and rheumatism, the deformity of which has been ably exposed by Dr. Garrod. No one, I apprehend, can read the valuable paper of this accomplished physician on the differential diagnosis between gout and rheumatism, without being convinced that the term rheumatic gout is a misnomer or rather that it is a name conferred on a nonentity—a title without an estate. Surely these cannot be the same diseases, in the one of which uric acid is always present in the blood in abnormal amount, while in the other it exists only in the usual normal quantity. Yet such has been proved to be the case relatively to gout and rheumatism. They are diseases essentially distinct, incapable of being merged, and therefore not even a hybrid can be expected where union is uncommon, if not impossible. As this is a matter on which it is of great importance that our views should be definite and correct, I make no apology for presenting the following rather long extract from the excellent paper already referred to:—"Can rubeola," asks Dr. Garrod, "become scarlatina, or scarlatina rubeola? Doubtless it is not unfrequently difficult to diognose certain cases of either of these diseases, at any rate, simply from the present condition of the patient; it is not, however, customary to designate such cases by the compound name of rubeolo-scarlatina, or scarlatino-rubeola; for we feel confident that each of these diseases is produced by a special poison, and has its own special pathology, although the symptoms produced by one may occasionally simulate those of the other. So, also, it may be asked, can rheumatism merge into gout, or *vice versa?* Has not each of these affections also its own special pathology, and is not the name of rheumatic gout, as generally applied, simply a cover for our want of knowledge of the precise affection under which any given patient may be labouring? I would not for a moment be thought to deny the possibility of a gouty patient becoming affected with rheumatism; but I have no hesitation in affirming, as the result of long experience and attention to the subject, that the disease is extremely uncommon, and that the cases ordinarily designated by that name are not those in which such a double disease is present." Returning, however, from this digression, and believing, as I do, that fibrous tissue is the part of the body in which what is considered to be gout proper is perhaps most frequently manifested; and, connecting this circumstance with the favourite locality of neuralgia, I see, in the coincidence, another testimony in favour of the identity of the blood poison, which, in one person, produces severe pain in the fibrous connections of joints; in a second, over the aponeurotic expansions of muscles; and, in a third, along the sheath of some particular nerve.

That neuralgia and gout are mere symptoms of the same blood poison appears probable, in the third place, and more especially, from the chemical history and characteristics of the particular urinary deposit which was found in great abundance in those cases of neuralgia which have furnished the text of these observations. I presume no one will deny that, in the disease to which the term gout is popularly restricted, uric acid exists in abnormal amount in the blood. Now, without affirming either that excess of uric acid, or that deficient elimination of it, which is virtually the same thing, is the cause of gout, we cannot shut our eyes to the fact, that the existence of that acid in abnormal quantity is an occurrence so constant, that it is very properly considered one of the principal pathognomic signs of the malady. If, therefore, we can prove, that oxalic acid is a product of uric acid, if we can prove that the salts of the one acid often replace those of the other, then we cannot regard it as a straining of facts to suppose that there exists absolute identity, in origin and in essence, of two painful affections, called no doubt by different names, but in which the kindred products just specified are found in unusual quantity in the blood and in the urine. That oxalic acid is one of the results of the oxidation of uric acid has been demonstrated. Thus, as Dr. Golding Bird remarked long ago, it is well known that a considerable portion of the urate of ammonia existing in guano has been converted spontaneously into oxalate of ammonia during the voyage necessary for the importation of that extensively used manure. Furthur, Wohler and Frerichs found that the introduction of uric acid into the organism was followed by the presence of oxalate of lime in the urine, while more recently, Dr. Garrod has witnessed the production of the same salt from the decomposition of uric acid in blood-serum. The evidence, then, is complete, that the oxalic is merely an emanation from the uric acid; and therefore, seeing that the latter has been proved to be characteristic of the gouty diathesis, may we not regard the former as equally so, and consider the abnormal conditions, in which we meet with these kindred bodies, as mere symptoms of the same disease, manifestations of the same poison, results of the same morbific action?

Such were some of the thoughts which passed through my mind when I found the oxalate of lime in great abundance in the urine of so many persons labouring under neuralgia, and observed that in the same patients the calcareous salt was occasionally associated with, or replaced by, uric acid, and the two well-known urates. In giving expression to these thoughts I confess to having been very much hampered by the custom so prevalent in medical literature of magnifying symptoms into independent diseases, confounding effects with causes, and perpetuating the error by giving to all of them separate, frequently ill-chosen, and utterly dissimilar names. If this splitting of generic diseases into their more obvious symptoms, and designating each of the latter by a separate epithet were of little consequence, then we might think with Juliet, there is nothing in a name; but when these different names lead us away from correct pathology and conduct to erroneous practice, then I hold it to be our duty, if we wish to see less nomenclature and more philosophy in medicine, to discountenance, as much as possible, that prevalent habit which leads us to derive our notions of the nature of morbific operations from no other source than the questionable phraseology which professes to describe their more appreciable results. Who could suppose, for example, that neuralgia, podagra, hemicrania, and the other half Greek, half Latin words in the gouty catalogue—sufficiently long to furnish a respectable looking dictionary of the portable class—were representative only of so many effects of one general cause? Neuralgia, no doubt, means pain in a nerve; podagra, that there is a seizure of the foot; hemicrania refers to half a head; but it would require a whole head, nay many heads, and very wise ones to boot, to discover that these names referred to three manifestations of the same poison, which nature had thrown out from the blood, in one person, on the sheath of some particular nerve; in a second, upon the great toe; and in a third, upon one side of the scalp. Once for all, then, I submit, as a probable circumstance, that what we call lithiasis, oxaluria, gout, neuralgia, *et id genus omne*, are mere symptoms of one general morbific action, to be counteracted on the same general therapeutic principles. Further, I wish it to be understood, that when referring to excess of uric acid in the blood, as the constant associate, if not the material exponent—I may not say the direct cause—of gout, I do not mean to convey, that in all cases the excess of that acid is actual. It may be relative, that is, there may be no more than the normal quantity produced; but if there be any defect in the eliminating power of the kidney, then this normal quantity, not being excreted, accumulates in the blood, and hence is found there in excess. At the same time, there can be no doubt that uric acid is frequently in actual excess from over-production, and thus, in the treatment of the various forms of the gouty diathesis, we will do well to remember that the abnormal quantity of acid may be actual, or relative, or both.

As already stated, the cases which have suggested these observations were nine in number; but so similar were the symptoms in the majority of them, that it were only to weary the reader were I to inflict on him a lengthened repetition of monotonous details, presenting nothing with which he is not familiar, and invested with no interest apart from the urinary deposit to which I have already directed his attention. Suffice it, therefore, to remark, that in one of the cases the circumflex nerve of the shoulder-joint was the seat of pain; in another, the internal cutaneous nerve; in the rest, there was well-marked sciatica. In one of the patients treatment failed to produce the slightest benefit; a second was relieved; a third, while I write, it still under treatment; the remaining six were cured, some of them very rapidly. The treatment consisted chiefly in the administration of 20 drops, three times daily, of the nitro-muriatic acid in an ounce of infusion of calumba; while in those cases in which uric acid and the urates existed in greater quantity, colchicum, acetate of potash, and opium, were more useful. Benefit was frequently obtained from the following combination—

℞. Acet. potass.; vin. sem. colchic. liq. op. sed. a ʒss.; aq. pur ℥v.—misce; cuj. mist. sumat. ℥ss. ex aquâ, octavâ quâque horâ.

In those cases in which the tongue was covered with a brown fur and the bowels were confined, two grains of calomel, two of blue pill mass, and five of compound extract of colocynth, followed by a dose of black draught, were often of the greatest service in expediting recovery.

As the modus medendi of colchicum and that of acetate of potash relatively to the various manifestations of the gout poison are very well understood, I shall confine my remarks on the treatment which was adopted in these cases, to a consideration of the manner in which the nitro-muriatic acid is supposed to exert a beneficial influence. In all those disordered conditions of the system, in which uric acid, the uratès, or the kindred salt, the oxalate of lime, are in abnormal quantity, as in what are called podagra, lithiasis, oxaluria, neuralgia, &c., there must of necessity be a deficiency of oxygen, in consequence of which, the above-named products of the secondary metamorphic assimilation are arrested in their transitional stages without undergoing that further and final "degradation" which is necessary for their ultimate removal from the organism. Thus, from great deficiency of oxygen uric acid may remain unchanged; or when the supply is greater, but yet not sufficient, oxalic acid only may be formed, and may remain as such, instead of being converted into the last products of oxidation, carbonic acid and urea. These ultimate changes are effected through the instrumentality of oxygen, and thus, in cases of so-called oxaluria, it is to supply the amount of oxygen necessary for "degrading" oxalic down to carbonic acid, that an oxidizing agent like the nitro-muriatic acid is administered. In what way the nitro-muriatic acid supplies oxygen will appear from a consideration of its composition, and of the chemical changes which take place during its preparation. The aqua regia, as this body is generally called, is made, as every one knows, by mixing definite proportions of nitric and muriatic acids. Certain chemical changes take place which it is unnecessary to specify, but for all practical purposes, the result, medicinally considered, may be affirmed to be the evolution of chlorine and the formation of water. But the chlorine reacts on the water, combines with its hydrogen, sets free the oxygen, and thus earns for itself the title of an oxidizing agent. The chlorine is therefore the real instrument which liberates the oxygen in that nascent state in which its energy is the most intense. A similar reaction is familiar to persons who are engaged in some of the industrial arts, particularly in bleaching, in which process, as is well known, the nascent oxygen, generated under similar circumstances through the agency of chlorine, is in reality the agent by which the bleaching is effected. When, therefore, the so-called nitro-muriatic acid is administered in oxaluria, the oxalic acid is very likely attacked by the now supplemented oxygen, and reduced by it to the condition of carbonic acid, as will probably be better understood by the following equation:— $C_2O_3 + O = 2\ CO_2$. But it may be asked, How is the lime disposed of, and is not carbonate of lime, equally with the oxalate of lime, an insoluble, and therefore a difficultly eliminable salt? If the above equation, however, correctly represents the chemical changes which ensue, it will be observed, that two equivalents of carbonic acid are formed, under the influence of the supplied oxygen, out of every one equivalent of the "degraded" oxalic acid, and therefore, that the soluble bicarbonate of lime is more likely to be formed than the neutral insoluble carbonate. Besides, even supposing that the latter were the produced salt, it is well known that the carbonates, as a class, are very unstable compounds, and that, as the urine abounds in highly acid salts, the neutral calcareous carbonate, if present, would very soon be broken up and disappear under their influence.

It may be objected to these views, that they are theoretical rather than practical, savouring too much of the chemical materialism which many regret is prevailing so extensively in the medical literature of the day, and I am quite prepared, consequently, for a large amount of ridicule, and of sneering at the absurdity of resorting to chemical equations and blackboards for the elucidation of pathological and therapeutical changes. It is at all times, however, more easy to ridicule than to refute; and though our attempts to arrive at truth may be often unsuccessful, it is better, I maintain, to make these attempts than to plod on in miserable routine, without being able to assign any reason for the course we are pursuing. Better, surely, to give some reason, even though it be a wrong reason, than to give no reason at all! At the same time I need scarcely add, that we should not doggedly cling to a theory which has been proved to be wrong, but should instantly abandon it in quest of a better. An objection of some weight, however, may be urged against the pathological views which have now been advanced, on the ground, that, assuming them to be correct, they refer merely to an effect, and not to a cause. The oxalate of lime, it may be said, is not the disease, it is merely a sequence of some antecedent morbid condition, and the rational practice would be to alter that condition, and then there would be no such sequence at all. Now, I am not sure that we should greatly err if we affirmed, that, in those cases of oxaluria of which neuralgia is the prominent symptom, the oxalate of lime is in reality the *immediate* cause of the pain which it felt. It will not be considered improbable that the calcareous salt may be deposited in the neurilemma, and if it be, pain of necessity will be produced in the nerve with which the foreign body is in contact. We know that the presence of urate of soda in the several structures of joints, including even their cartilages and bursæ, is the chief cause of the sufferings of the victim of gout, and there is no reason why a similar result should not follow the deposition and imperfect elimination of the oxalate of lime. At the same time I readily admit, that he who is imbued with that spirit of philosophical inquiry which ought to animate every member of our profession, will not rest satisfied with the mere knowledge that oxalate of lime is present, but will try to find out why it is present, whence it has come, and what is the precise nature, and what the signs, of that antecedent constitutional error which has generated the abnormal product. In the course of these remarks I have more than once alluded to the fact of uric acid being in excess in the blood of those who are suffering from gout, and I have also spoken of that excess as being the result of actual over-production, of deficient renal elimination, or of both causes combined. I would not have the reader to suppose, however, that I regard uric acid and gout as synonymous, interchangeable terms which are descriptive of some general morbific cause. On the contrary, I regard these phenomena merely as effects, but I submit that the very constancy of their association throws some light on the kind of previous action which manifests itself in their simultaneous production In support of this opinion we have only to look at the habits and manner of livng of those who are the subjects of gout in its most familiar and unequivocal aspects, and at the class of persons on whom it inflicts its unwelcome visitations. As a general rule, does it not select for its victims those who indulge in highly introgenous articles of diet, and in whom, consequently, actual over-production of uric acid, irrespective altogether of deficient elimination, must follow as a matter of course? The well-known experiments made by Lehmann on himself, with the view of determining the amount of uric acid excreted under the use of different kinds of diet, are conclusive as to the power which we have either to create that acid in excess, or to diminish it, as we think proper, by the mere quality and quantity of our food. By undeviating observance, then, of the peptic code, enjoining strict conformity with its salubrious regulations, aided by pure air, regular habits, moderate indulgence in sleep, and healthful exercise of mind and of body, we may do much to counteract even a hereditary tendency to that condition of the system, which, if not controlled by such hygienic checks, may generate uric acid in excess, and characteristic bodily suffering as its concomitant. And in the cases of those actually suffering from the disease, what adjuncts to medical treatment are so beneficial, as the dietetic restrictions and the general hygienic counter-action to which I have just referred ? Further, the gouty diathesis may display itself in other forms and among a different class of patients. If it has been proved that oxalic acid is a product of the oxidation of uric acid, and if it has been rendered probable—and, *a fortiori*. if more extended observation shall make it certain—that the former acid is the associate, or material exponent, of that manifestation of the gout poison known as neuralgia, then we can easily understand how the working and middle classes, taking more exercise, and necessarily consuming more oxygen than the idle and the luxurious, may exhibit the kindred products, oxalic acid and neuralgia, as *their* manifestation of the gout poison, rather than uric acid and pain in the joints. If these views be correct, then we may have some conception of the circumstances which regulate the several evolutions of the one, internally generated, poison, and may learn how the state of the system which produces it may be counteracted, or rather prevented, with little assistance from medicine, and by depending chiefly on dietetical and hygienic means.—*Glasgow Med. Journal, Oct.* 1858, *p.* 259.

16.—*Tubercle and Cancer.*—Tubercle possesses no fibrous stroma, but is infiltrated among the elements of various organs, the vascularity of which it tends to destroy. A cancerous tumour increases by growth, which tubercle cannot be said to do ; the former is vascular, the latter is not ; in the one cells are formed which have the power of redevelopment, in the other no reproductive cells are produced. In cancer, the morbid matter circulating in the blood—whatever it be—is concentrated or attracted to the cancerous part ; and should none afterwards be present, the healthy blood is made subservient to the purpose of nourishing a foreign growth. In tubercle, successive exudations are made, which by their accumulation augment the volume or amount of the morbid product.—*Med. Times and Gazette, Dec.* 11, 1858, *p.* 604.

17.—*On Cancroid Tuberculosis.* By H. W. Bubb, Esq., Welwyn.—H. C. A., aged seventy-two, an hotel-keeper, of temperate habits and good general health, first perceived, fourteen years ago, a small pimple on the left side of the upper lip. It soon increased in size, began to ulcerate, and became very painful and irritable. He was under the care of a surgeon for some time without relief, and was unsuccessfully treated by other surgeons ; at length, after being several times threatened with the " knife," he consulted the late Mr. Aston Key, who applied chloride of zinc to the ulcer. This treatment appeared at first to be successful ; but after a time the affection became as bad as ever.

I saw him for the first time in March. On examination, I found an ovoid-shaped and very cancerous-looking ulcer, with jagged edges and somewhat hardened base, extending from the angle of the mouth to the left side of the nose. There was no discharge. He complained of pains "shooting upwards to the eye and downwards to the throat, and great itching." I removed the scab with which the ulcer was thickly covered, and touched the surface freely with nitrate of silver, and continued this treatment until three months ago, with little or no result. I then had recourse to the acid nitrate of mercury, which I applied weekly. The effect has been extraordinary. The ulcer is now quite skinned over, and appears to be cured.—*Lancet, Nov.* 20, 1858, *p.* 523.

18.—CASE OF CANCER OF THE TONGUE REMOVED BY THE ECRASEUR.

By Dr. John Reddy, L.R.C.S.I., Physician to the Montreal General Hospital.

[The case is that of a woman, aged thirty, thin, but rather healthy-looking, and five months pregnant. The operation was performed at this time, we suppose, on account of the extremely rapid growth of the tumour, and the excruciating pain attending its increase.]

The appearance of the tumour at present is as follows :—it is of a dusky red colour, irregular in shape, about the size of an ordinary walnut, occupying the right lateral half of the tongue to tip, a small superficial abrasion being near its centre, it has a nodulated uneven feel, presenting considerable resistance on pressure, and is most painful to the touch. None of the glands about the throat or neck are affected. On the 7th, assisted by my colleague, Dr. Fraser, I explored the tumour, and by the aid of the microscope discovered well-marked cancer cells in the juice, and in a very minute portion of it that came away in the groove of the needle. Several of the physicians of the hospital who saw the case agreed with me as to the nature of the disease.

On the 10th, the patient being chloroformed, a ligature was passed through the centre of the tumour, and the chain of the ecraseur being made to include all the diseased part, I commenced the operation, a minute being allowed to elapse between each movement, at the expiration of 34½ minutes the part was divided and bloodless; a few minutes after she was able to speak indistinctly, but was free from pain. Visited her at nine o'clock, p.m., was free from pain, no signs of hemorrhage, tongue a little swelled, feels inclined to sleep.

[In the reports of progress on subsequent days it is noticeable that no subsequent fever appeared, relief from pain, and tolerably rapid healing of the wound followed.]

It is a remarkable as well as a singular fact that this makes the third case of a similar character that has occurred within a period of twelve months in the neighbourhood (L'Acadie) where this woman resides. She informed me that she was acquainted with the individuals, a man and woman, both of whom died; and they neglected to apply for relief till the disease had proceeded so far that nothing could be done.

Many object to the use of the ecraseur on account, as they say, of its not making a very surgical-looking operation, but in such cases as the above I consider it has decided advantages over every other means, and its chief value consists in its not incurring any risk of the free hemorrhage which often attends the use of the knife, while compared with the ligature it entails little or no suppuration, and you obtain your object at once. When operating, the person should be kept as steady as possible, since any sudden movement might cause the chain to tear the part, and thus give rise to bleeding, at least a full minute is necessary between each movement of the instrument. The ligature that isolates or that may pass through the tumour must be kept free of the chain, as at the close of the operation it may cause delay by preventing the divided part dropping off.—*Montreal Med. Chronicle, June* 1858, *p.* 1.

19.—*Enucleation of Scirrhus of the Breast.* By T. SPENCER WELLS, Esq.—It is a question often discussed in consultation, when a scirrhous nodule is discovered in a breast, or when only a small portion of the mammary gland is affected by carcinoma, whether it is sufficient to remove the nodule or diseased portion, or whether it is necessary to extirpate the entire gland. Many surgeons think that if any operative proceedings be undertaken, the whole gland should be removed; others think that so severe a measure as this exposes the patient to unnecessary danger, and that it is safer and equally effectual to remove the diseased portion only. This, of course, is a question which experience alone can decide—the great question being, whether supposing the patient to do well after either proceeding, which is the more likely to be followed by reappearance of cancer, and at what period after operation. As one fact contributed towards the solution of the problem we record a case in the practice of Mr. Spencer Wells, at the Samaritan Hospital, in which he removed a scirrhous nodule the size of a large walnut from the upper segment of the left breast of a married woman, forty years of age, early in November. As the greater part of the gland appeared to be healthy, and the woman was extremely anxious to be rid of the tumour, Mr. Wells proceeded to remove it, with the intention of removing the whole gland, if he should find any signs of infiltration of carcinoma beyond the nodule. The integuments were incised, the nodule enucleated by the fingers, and the connection with the gland divided by the knife. Dr. Aitken at once made an examination of the nodule, and found that the gland tissue around it was quite healthy. Accordingly, the operation was concluded by bringing the skin together by four iron-wire sutures. There were some venous oozing from the inner end of the incision for three or four days, but the wound healed by the first intention. The woman was not confined to bed, and left the hospital in a week, not mutilated by the loss of a breast. So far there was clearly a great gain over the old practice. Whether the ultimate results of this practice prove encouraging, of course time and many cases can alone decide.—*Med. Times and Gaz., Dec.* 18, 1858, *p.* 629.

20.—*New Hygrometric Theory of Cholera.*—The meteorological relations of the cholera epidemic were for the first time carefully studied in this country during the last visitation. It cannot be said that the results were very conclusive in any one direction, or that any theory of disease in relation to climatal disease has been eliminated from the investigations then made; but the council of the British Meteorological Society, in their last report, while recording their sense of the incompleteness of these and other collected observations for any medical theories, undertake to continue their labours, and express a strong hope of useful deductions.

M. de Ruolz, well known for important discoveries in the art of electro-gilding, has been content to argue from a narrower basis, and has lately communicated to the 'Cercle de la Presse Scientifique' of Paris an interesting series of facts regarding the proportion of moisture contained in the atmosphere during the prevalence of cholera. By analyzing the various statistical data collected during the French epidemics of 1832, 1849, and 1854, M. de Ruolz has deduced the following facts: In 1832, the epidemic in Paris reached its height in April, when the hygrometer was lowest: it declined to the utmost in September, when the hygrometer was highest. In 1849, the hygrometrical observations at the observatory of Paris had been unaccountably neglected; but 1854 afforded results quite in accordance with those of 1832. Hence M. de Ruolz infers that there undoubtedly exists a positive coincidence between the intensity of the epidemic and the hygrometrical state of the atmosphere, the former being in the inverse ratio of the humidity of the air. Other circumstances he considers to point to the same conclusion: thus, Lyons, a city remarkable for its damp atmosphere, owing to the two rivers which embrace it, has never been visited by cholera. Amongst washerwomen, who live in a damp medium, he says that cholera has always been very low, and he makes the same assertion with reference to "persons living in damp places, on the banks of rivers, &c." Finally, M. de Ruolz tells us that during the last choleraic invasion in London, the copious watering of the streets was found very beneficial. The views thus enunciated in the

'Cercle Scientifique' did not remain wholly unopposed. Thus, it was remarked that sailors were very subject to cholera; that cholera made great havoc in Holland, where the air is notoriously moist; and that in certain localities the cholera has been known to lay waste one bank of a river and to spare the other. M. de Ruolz, however, pressed for further investigation, and suggested that, by way of experiment, in any future epidemic the streets should be well watered, and the fire-engines should play on the roofs of the houses in the infected quarter. It were idle to smile at his singular expedient, if indeed it were probable that any useful result could flow from it. And there is no valid reason why Mr. Braidwood should not brigade his force against an epidemic, or why cholera should not be attacked with the fire-engine as well as with the lime-pail and the brush of the whitewasher—a favourite panacea with metropolitan vestries,—or by the artificial creation of ozone and the introduction of certain ozonified breezes, as more subtle chemists have recently suggested. But we have the strongest doubts whether M. de Ruolz's theory will "hold water." The experience of Lambeth, of Wandsworth, and of other humid districts close to the river-side, has certainly not offered confirmatory facts; and though unacquainted with the actual statistics of deaths from cholera amongst London washerwomen, we are in possession of a number of isolated observations which do not dispose us to regard soapsuds as a prophylactic against epidemics in the sense which M. de Ruolz suggests.

[We think there is much truth in the above theory. For many years past we have noticed that in the large town of Leeds almost all epidemics exist during long drought, and cease rapidly after much rain. We well remember the cholera being very prevalent and fatal some years ago, during a long drought, and almost instantly ceasing when a tremendous fall of rain had washed the streets and flushed all the sewers.]—*Lancet, March* 19, 1859, *p.* 299.

DISEASES OF THE NERVOUS SYSTEM.

21—ON THE NERVOUS SYSTEM.

By Dr. E. Brown-Sequard.

[About twelve very interesting lectures on this subject have been delivered at the Royal College of Surgeons, by Dr. Brown-Sequard, but as they were more physiological than practical we avoided giving any analysis of them. In these lectures Dr. Brown-Sequard advances many views which are new and contradictory to those held hitherto. The following are his conclusions.]

1st. Excitations of the anterior roots of the spinal nerves may be a cause of pain, because these roots, being motor, produce a *cramp.* The pain due to this cramp is what has been erroneously called *recur-*

ring sensibility. Cramps, and several other kinds of painful spasms (of the uterus during parturition, of the sphincter ani in certain cases, &c.), are painful on account of a galvanic irritation of sensitive nerves accompanying muscular contractions.

2nd. Our movements seem to be guided by the peculiar sensations we derive from the galvanic irritation of certain sensitive nerves of muscles, while they contract.

3rd. The power of transmitting sensitive impressions exists in many parts which are not able to give pain or any other sensation when they are excited by our usual means of irritation: so it is with the grey matter of the spinal cord and with many parts of nerves, which, however, are conductors of sensitive impressions.

4th. Hyperæsthesia is a constant result of certain injuries upon, or alterations of, the posterior parts of the cerebro-spinal axis, from the tubercula quadrigemina down to the lower end of the spinal cord.

5th. The transmissions of sensitive impressions, in the spinal cord, takes place chiefly through the grey matter, and partly through the anterior columns; but, before reaching the grey matter, the impressions, in a certain measure, pass through the posterior columns.

6th. The conductors of sensitive impressions from the trunk and limbs decussate in the spinal cord, and not in the encephalon, as was universally admitted.

7th. Although the spinal cord is greatly altered or injured, sensibility, more or less diminished, may persist everywhere, on account of a peculiar arrangement of the conductors of sensitive impressions.

8th. The various kinds of sensitive impressions seem to be conducted by quite distinct nerve-fibres, in the nerves and in the nervous centres, and the place of passage of some of these conductors in the spinal cord seems not to be the same as that of the others, but none of them go up to the sensorium along the posterior columns.

9th. In the upper part of the cervical region of the spinal cord. near the medulla oblongata, most of the conductors of the orders of the will to muscles are in the lateral columns, and in the grey matter between these and the anterior columns.

10th. The voluntary motor conductors decussate at the lower part of the oblong medulla, and not all along the median line of the base of the encephalon.

11th. The posterior columns of the spinal cord have a great share in reflex movements, and this is the principal cause of the peculiar kind of paralysis so often observed in cases of alteration of these columns.

12th. The effects of excitation of the vaso-motor nerves consist essentially in a contraction of bloodvessels, which is followed by a diminution in the quantity of blood, in the temperature, and in the activity of nutrition. The effects of interruption of continuity of the vaso-motor nerves (i.e., their paralysis) consist essentially in a paralytic dilatation of bloodvessels, which is followed by a greater afflux of blood, an increase of temperature, and a greater activity of nutrition.

13th. As a great many vaso-motor nerve-fibres go up to the brain and to the cerebellum along the spinal cord, the medulla oblongata and the pons Varolii, the diseases or injuries of the various parts of the cerebro-spinal axis, besides symptoms concerning sensibility and movement, present symptoms depending upon irritation or paralysis of vaso-motor nerves: contraction or relaxation of bloodvessels, diminution or augmentation in the quantity of blood, increase or diminution of temperature, alterations of nutrition, of secretions, &c.

14th. Besides the influence of the nervous system upon nutrition, absorption, and secretion, through the vaso-motor nerves, there is another which seems to consist in changes in the elements of the tissues—changes producing various modifications in the quantity of blood attracted, and in the interchange of materials between the blood and the tissues.

15th. The absence of the influence of the nervous system on any part of the body is hardly a cause of other alterations of nutrition than atrophy, while the irritation of the nervous system is a most powerful direct or reflex cause of a great many morbid changes in nutrition, secretion, &c.

16th. The sympathetic normal and morbid changes of nutrition, secretion, &c., are reflex phenomena, the study of which shows how many diseases are produced by a reflex action, and how a rational mode of treatment might be arrived at.

17th. The loss of consciousness in simple vertigo or in complete attacks of epilepsy does not depend upon a disease of the brain, but upon a contraction of the bloodvessels of the cerebral lobes—contraction due to some irritation of the vaso-motor nerves of these vessels, either by some direct cause irritating them in the base of the encephalon or the spinal cord, or by a reflex influence.

18th. Much more frequently than has been imagined, all the following affections may be produced by a peculiar kind of irritation starting from almost any centripetal part of the nervous system: epilepsy, the various forms of insanity, chorea, catalepsy, hysteria, tetanus, hydrophobia, &c.

19th. The medulla oblongata is neither the only nor an essential nervous centre for the respiratory movements.

20th. There are a great many nerve-fibres and nerve-cells in the medulla oblongata, the pons Varolii, and the other parts of the base of the encephalon, which are not employed in the transmission of sensitive impressions or of the orders of the will to muscles, and are endowed with the singular property of producing, after even a slight irritation, a *persistent* spasm in certain muscles, and especially in the neck. Rotatory convulsions very often depend chiefly upon the production of such spasms, and of changes in the bloodvessels of certain parts of the encephalon.

21st. The irritation of the auditory nerve may cause rotatory or simple clonic convulsions.

22nd. The conductors of the orders of the will to muscles, of the sensitive impressions and of the nervous influences to bloodvessels, decussating at different places in the cerebro-spinal axis, various symptoms are to be observed, depending upon either the irritation or the paralysis of these three kinds of conductors, according to the part of a lateral half of the cerebro-spinal axis where an alteration exists.

[The Editor of the 'Lancet,' in a leading article, gives us the following conclusions, which he has drawn from these lectures:]

1st. That the decussation of the conductors of sensitive impressions, from the trunk and limbs, does not take place in the encephalon, as was universally admitted, but in the spinal cord; and, as a consequence, that any alteration of a lateral half of the cerebro-spinal axis, producing a diminution or the loss of sensibility, produces it in the opposite side of the trunk and limbs.

2nd. That the decussation of the conductors of the orders of the will to muscles takes place at the lower part of the medulla oblongata, and not all along the base of the encephalon, as has been stated by most of the best writers on the nervous system; and, as a consequence, that alterations at the level of the decussation int he oblong medulla, although limited to one-half of the organ, will produce paralysis on the two sides of the body, while alterations in any half of the cerebro-spinal axis *above* the decussation will produce paralysis only in the opposite side of the body, and *below* this decussation, in the same side of the body. As another consequence, *direct* paralysis from disease in one-half of the encephalon (in the crus cerebelli especially) depends on quite another cause than an interruption of continuity of voluntary motor nerve-fibres.

3rd. That the decussation of the conductors of nervous influence to bloodvessels (of course of those conductors which originate in the cerebro-spinal axis) seems to take place chiefly in the base of the encephalon, and especially above the pons Varolii; and, as a consequence, that these conductors are paralysed chiefly in the side of the body corresponding with the side altered when an alteration exists in the spinal cord, the medulla oblongata, and even the pons Varolii; while, if the alteration is in one side of the corpora striata, of the optic thalami, &c., the paralysis of bloodvessels is in the opposite side.

4th. Many views, as interesting as the preceding, have been proposed by Dr. Brown-Séquard, as regards the share of the grey matter in the transmission of sensitive impressions; the cause of persistence of some degree of sensibility in cases of notable alterations of the spinal cord; the existence of an increased sensibility in many circumstances, and the relations of hyperæsthesia with an augmented temperature; the production of epilepsy, and of many other affections, by a reflex influence; the rotatory or vertiginous convulsions, and the influence of certain parts of the nervous centres and of the auditory nerve in producing spasms and other morbid results.—*Lancet, Dec.* 25, 1858, *pp.* 652, 658.

22.—A SERIES OF CASES OF NARCOTIC INJECTION INTO THE CELLULAR TISSUE IN NEURALGIA AND OTHER DISEASES.

(From Notes by C. HUNTER, Esq., House-Surgeon to St. George's Hospital.)

[In consequence of the paper by Dr. Alexander Wood, of Edinburgh, showing the advantages derived in cases of neuralgia, from the injection into the cellular tissue, of a strong solution of morphia; this mode of treatment has been adopted at St. George's Hospital. It has been found to be very liable to cause formation of abscesses, when frequently repeated in the manner recommended by Dr. Wood. Dr. W's. paper will be found at p. 22 of our last volume. Two cases were subsequently published by Mr. Hunter, the writer of the present paper, and are reprinted at p. 27 of same volume.]

Mr. Hunter was led to make experiments with a view of discovering whether the action of the remedy depended on its localisation at the painful spot, or whether it would also give relief if injected into other parts of the cellular tissue. The latter turned out to be the case, so that Dr. Wood's remedy proved even more widely applicable than its author had at first supposed. We shall proceed to quote from Mr. Hunter's notes the account of a few of the cases in which he has used this agent, merely premising that the method in use at this hospital is to pass into the cellular tissue, through a small puncture, a few drops of a very strong solution of the acetate of morphia, with a syringe, such as is used for the injection of the perchloride of iron into nævi, by which means a certain small number of drops can be passed in with certainty. The solution of the acetate of morphia is assisted by the addition of acetic acid; and the superfluous acid is then neutralised, as this is found to have some effect in obviating abscess.

Case 1. Henry Smith was admitted under the care of Dr. Page on September 29th, 1858, on account of sciatica. He was put upon a course of morphia (one-sixth of a grain of the acetate with two grains of acetous extract of colchicum three times a day), but without benefit; and galvanism was applied over the region of the hip, equally ineffectually. On November 2nd, these measures were suspended, no improvement having been obtained. On November 3rd, Dr. Page directed that three-fourths of a grain of acetate of morphia should be injected into the cellular tissue. This was done at the lower border of the buttock. Three-quarters of an hour afterwards, the man was not asleep, but felt drowsy, was warm and very comfortable, and his skin was perspiring. Next day, he had slept better than usual, and the pain in the hip felt easier. His mouth became dry in the morning, and he was sick once. In the evening the injection was repeated, but into the cellular tissue of the arm. He then went off to sleep at once, and slept for five hours, waking afterwards occasionally. This was, for him, a very good night. He felt the leg certainly stronger afterwards; but the pain continued as before, if anything, a little worse. In the afternoon of November 5th, he was walking about, boasting how much stronger his leg was, and how much better he could walk. At 10 P.M., the same dose as before was injected, this time into the cellular tissue over the sciatic nerve. He passed a good night, had no sickness from the morphia, walked about a good part of the afternoon, and seemed delighted with his progress. In the evening, the injection was repeated, into the cellular tissue of the other arm. He went out quite cured on November 10th, the injections having been practised five times altogether.

Case 2. Edmund H., aged about 30, was admitted on November 2nd, under the care of Dr. Page, with delirium tremens. An emetic was given, and he was treated with forty drops of laudanum every other hour during the day. He slept a little during that night, but was as bad as ever next day. After the night of the 2nd, he did not sleep for two days and nights, and was so excited that the strait waistcoat was found necessary. Morphia had been repeatedly given in half-grain doses by the mouth, but without producing sleep. At 3 p.m., on November 5th, half a grain of morphia was injected into the cellular tissue of the neck. At the time of the injection, he was quiet, but sleepless; the tongue was tremulous; he could talk rationally. Ten minutes after the dose he was in the same state; the eyes were open; he was sleepless. Fifteen minutes after the injection, the eyes were occasionally shut, and, when open, looked sleepy. One hour afterwards, the eyes were frequently closed; he seemed quiet, and inclined to sleep; and in two hours he was comfortably asleep, and continued so for five hours and a half. He then had some wakeful intervals, but again went to sleep for five hours, and afterwards continued dozing throughout the night. On November 6th, he was much quieter than he had been the previous day: the pulse was 80; the skin perspiring. At a quarter to 9 p.m. the same dose was again injected. He was found three-quarters of an hour afterwards, fast asleep, and continued so for nine hours. On Nov. 7th, he was far more quiet and rational. The injection was repeated in the evening; but on the following evening he was found asleep. No further symptoms occurred, and he was discharged cured a few days afterwards.

Case 3. An elderly man, aged about sixty, was admitted on November 5th, 1818, with a gunshot wound of the thigh. On November 13th, he had a little wandering delirium. On the 14th trismus and other symptoms of tetanus supervened; and these increased during the two following days. On the 16th, it is noted that he had hardly slept since the spasms first came on. At thirty-five minutes to one o'clock, three-quarters of a grain of morphia was injected into his arm. In twenty-five minutes he fell asleep, and remained asleep for the greater part of the night, totally undisturbed by the tetanic spasms, although they recurred nearly every minute. The progress of the case did not appear to be affected by this treatment; but it was interesting to observe that, though the brain was brought fully under the influence of the narcotic, the spinal system remained in the same state of excited action as before.

Case 4 was that of a man (Richard W.) who was admitted on December 1st, 1858, on account of a self-inflicted wound of the throat. He appeared to be maniacal, and on the following night again attempted suicide. About midnight on December 3rd, he again became extremely excited, noisy, and restless. He was restrained by two men; and two doses of half a drachm of laudanum were given, but without effect. Five drops of the solution of morphia were then injected into the cellular tissue of the arm. For the first quarter of an hour afterwards, he was very quiet, and often shut his eyes for a minute, as if asleep. He went to sleep in twenty minutes, and remained so for six hours and a half. The morphia injection was repeated occasionally afterwards, with equally beneficial results, as far as obtaining sleep went; but the patient appeared to be in a state of confirmed mania.

Case 5. James D., aged 70, was admitted on November 24th, 1858, under Dr. Page's care. He had been subject to gout, and for a fortnight had been suffering day and night from pain resembling sciatica. He was treated with morphia and colchicum, and then with saline mixtures and hyoscyamus, without the least good effect. The narcotic injection was then practised in the arm. In a quarter of an hour afterwards, he was sound asleep, and slept all night. The next day he had no pain in the limb at all. Three days after the injection, it was reported that he had been better ever since, had slept pretty well, and had little or no pain during the day.

Case 6. Mary D., aged 16, was admitted on Nov. 16th, under the care of Dr. Page, in a fearful state of chorea, which the treatment adopted quite failed to relieve. On December 7th, it is reported that she was then much weaker than at the time of her admission. She had had no sleep for three days and nights, and was perpetually moving about, sometimes violently. It seemed probable that, unless sleep was procured, she would die of exhaustion. At 11 P.M., one-third of a grain of morphia was injected into the cellular tissue of the neck. In fifteen minutes she was asleep, and slept soundly for three-quarters of an hour; but then awoke, and was as bad as before. At 2.30 A.M., half a grain was injected. She was asleep in four minutes, and slept for three hours. On December 8th she was again as bad as ever; sordes were collecting about the lips, and the pulse was extremely weak. In the evening, one-third of a grain of acetate of morphia was injected. In seven minutes she dozed, and had a little sleep. At 1 A.M., half a grain was again injected. She again went to sleep in four minutes, and slept for six hours and a half. The relief, however, proved only temporary; and she ultimately died exhausted. No *post-mortem* examination could be obtained.—*British Medical Journal, Jan.* 8, 1859, *p.* 19.

23.—ON THE HYPODERMIC TREATMENT OF DISEASES.

By Charles Hunter, Esq., late House-Surgeon to
St. George's Hospital.

Medicinal substances may be introduced into the cellular tissue beneath the skin with the greatest facility by means of a minute syringe, and so introduced certain medicines will act with extraordinary rapidity, and the most satisfactory result.

To distinguish this plan of injecting beneath the skin from the epidermic and endermic, it would be as well perhaps to use similar phraseology, and call this the hypodermic method.

Dr. Alexander Wood, of Edinburgh, has long employed the introduction of medicines into and under the skin, in the various forms of neuralgia. To him is due the discovery of injecting narcotics into the tender spots of the neuralgic part or tissue, whichever it happens to be; the belief of Dr. Wood being, that the *lozalisation* of the remedy in the neuralgic part is the cause of the success which attends his practice.

I have tried Dr. Wood's treatment and localisation of the narcotic injection to the neuralgic part, and found it productive of considerable relief; as, however, I found frequent repetition of the injection in the same spot productive of abscess, I employed the hypodermic injection of other parts of the body, avoiding localisation of the injection; and I have found that the hypodermic injection of the cellular tissue beneath the cutis of any part of the body is quite as striking and as curative in its effects as the injection localised to the neuralgic tissue; moreover, it has these advantages, viz., that inflammation is less likely to follow, and less pain must necessarily accompany the injection of a sound, than an unsound or morbidly sensitive part.

In the present communication I wish to draw the attention of the profession to this mode of introducing medicine as applicable in many other affections besides neuralgia.

How often we find that medicine fails to afford sleep to the restless, the highly excitable, the delirious, and the maniacal. In all these cases I have tried the hypodermic injection of narcotics (often when other measures had been tried and failed), and in all the effect was immediate, or nearly so, quiet or sleep directly supervening.

My proposition is,—That to produce an immediate or a decided effect no method is more effectual than the hypodermic injection of the cellular tissue.

In favour of this being the case (venous injections being set aside on account of its danger), I will relate some experiments, but must first state that the reason the word "narcotic" is inserted in the proposition is because narcotics are the class of medicines I have always employed in the cases in which I have tried the hypodermic injection, and they are the class of remedies called for generally where an immediate effect is required, either to relieve pain or produce sleep.

The following experiments will show with what rapidity medicines injected into the cellular tissue of the body will act :—

Experiment 1. I injected a few drops of water containing one-twelfth of a grain of the acetate of strychnia into the cellular tissue of a cat ; in one minute it was tetanic, and in two minutes it was dead.

Experiment 2. I injected half a grain of morphia into the subcutaneous cellular tissue of a rabbit ; it was completely comatose in five minutes, and remained so for hours.

Experiment 3. By the kind request of Dr. Page, I injected half a grain of the acetate of morphia into the arm of a girl aged sixteen, suffering from extreme chorea of all the muscles of the body ; in two minutes all the muscles had ceased their irregular movements, and in four minutes the girl was asleep.

Experiment 4. A man suffering from tic-doloureux was for some time subjected to the hypodermic treatment; he almost constantly slept in from two to three minutes after the dose was injected at night.

In several cats which I injected with morphia, the first symptoms showed themselves in a very few minutues.

From the following experimental observations on man and animals it will be seen that,—

1. Hypodermic injections act quicker than stomachic doses.
2. That they produce a more powerful, a more effective result ; and,
3. That frequently the hypodermic injection is productive of the greatest benefit, whilst an equivalent dose administered by the stomach is entirely useless, and even prejudicial.

Experiments 5 *and* 6. I injected three-quarters of a grain of the acetate of morphia into the cellular tissue of a man with *mania à potu*. He got to sleep almost directly, and slept for many hours. I gave the same man the same dose (three-quarters of a grain of morphia) in one ounce of water as a stomachic dose ; it was one hour before sleep was produced, which, when obtained, lasted only about one hour and a half.

Experiments 7 *and* 8. I obtained a fine healthy rabbit, and, assisted by Mr. Venning, injected half a grain of morphia in about three drops of water, into the subcutaneous cellular tissue of the animal. It appeared slightly affected in two minutes, and fell comatose without a struggle in five. The pulse and respiration were very much lowered at the same time; narcotism lasted in this rabbit from six to seven hours; it appeared perfectly convalescent in nine hours.

Some days after, Mr. Venning present, I again attempted to narcotise the rabbit by the same dose given by the stomach; a gum catheter was used to make certain of the fluid entering the stomach: for a long time we awaited the result, but no narcotism followed; the rabbit never even went to sleep, nor did it bring up the morphia.

Experiment 9. I injected three-quarters of a grain of morphia into the cellular tissue of a cat; it became preternaturally quiet directly after; in seven minutes it gave a convulsive start, its position previously having been fixed and uncomfortable; in thirteen minutes it uttered short sharp cries; muscles of body rigid; eighteen minutes, muscles of extremities become rigid also; the rigidity of the muscles became more marked, until at forty minutes it was in a general tetanic condition, the body fixed, and the legs extended. The cat, contrary to expectation, recovered; but for many hours suffered from the morphia, which appeared to throw the animal into a state of drunkenness, after the muscular rigidity had passed off. Two or three other cats, with a similar dose, I have thrown into a state of strong convulsion, and even of tetanic spasm, by the injected dose of morphia.

Experiment 10. With the aid of Mr. Keal I administered the same dose of morphia to the same cat as in experiment 9,—by the stomach—the gum catheter being passed down the œsophagus. The cat was quite natural for five minutes, then became quiet, and was sick in eight minutes, with five or six spasmodic retchings; it began the purring which morphia causes in all cats in fifteen minutes; at twenty minutes and thirty-five minutes it had one leg convulsed, and in one and a-half hours became very excitable and constantly on the move, as if tipsy: this lasted several hours; but it never had the general spasms, or rigidity which the injected dose produced.

Experiment 11. With Mr. Ash, I gave the same cat the same dose by the stomach in the same quantity of water, but this time warm (instead of cold, as in experiment 10). Sickness was again the first well-marked symptom of the action of the morphia; it took place in ten minutes; the succeeding symptoms were as in last experiment, but milder.

As the question might arise whether the sickness in these last two experiments might not have been due to the mechanical irritation of the stomach by the catheter, we made some experiments to set it at rest. We went through the process of injecting at different times cold and warm water into the stomach of the same cat with the catheter; no sickness nor irritation of any kind ensued.

Experiment 12. In a patient with hemicrania no narcotic except morphia, injected, will cause sleep. Opium and morphia have repeatedly been tried by the stomach; they never produce sleep, they always cause sickness.

From experiment we may gain much; but far more satisfactory is the proof, if it be derived from cases in which the remedy has been called for, tried, and found successful, than from its trial on animals.

Besides such cerebral affections as delirium tremens and mania, in which I mentioned this treatment as producing instant effect and speedy relief, even where large quantities of narcotic medicines had failed by the stomach; there are cases of functional cerebral derangement of the milder form, manifested by wakefulness, continued perhaps for days together, accompanied, it may be, or it may not, by excitability.

I may refer to two cases of this kind in which I have employed this treatment of narcotic injection with marked and immediate effect; and it may be observed, that in both, the administration of narcotics by the stomach *had failed.*

Case 7. *Continued Wakefulness, with Excitement.* James H., aged about 40, a man of temperate habits, of a highly nervous temperament, was admitted into St. George's Hospital in December last, under the care of Mr. Tatum. He was suffering, on admission, from a gunshot wound of the foot, from which part the bullet was extracted the day he came in, while he was under the influence of chloroform. The wound caused the patient to be in a perpetual worry and anxiety about himself, which at last got to such a pitch, that he could get no rest. After two days of wakefulness, during which time he was perpetually talking and getting more excited, and could neither be quieted by morphia, opium, nor hyoscyamus (the opium on the contrary, causing a little delirium), I injected,* at the request of Mr. Tatum, half a grain of the acetate of morphia into the cellular tissue of the right arm. At the time I injected the morphia, the man was talking in an excited manner, and did not feel the point of the syringe which I quickly thrust beneath the skin: this was at 9.30 a.m.

In *five* minutes he was asleep, and with the exception of a few minutes, about 11.30 p.m., he slept the whole of the night. The benefit this patient received from the injected dose of morphia did not end with the sleep; he was much quieter for the next few days, his appetite returned, and his face lost the flushed and anxious look it before had. The injection was not again required.

Case 8. *Wakefulness without Excitement.* This case was also under Mr. Tatum, in St. George's Hospital. Mary J., aged 35, of an hysterical aspect, was admitted for some subacute affection of the hip. For nights together this woman never slept (carefully watched by the night nurse), and morphia, in doses up to three-quarters of a grain by the stomach, produced no effect at all, whereas the same doses injected beneath the skin would cause her to sleep soundly.

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* The instrument I employ is the same in construction as the syringe for injecting aneurisms, with a gold nozzle, sharp pointed and perforated. The makers of this syringe (which works by a screw, each whole turn of which is equivalent to one minim), and of a cheaper one, without the screw, but graduated, are Whicker and Blaize, St. James's-street.

From purely cerebral cases I now pass to one in which it seemed the spinal cord was also affected, judging from the constant and violent spasms of the muscles.

Case 9. This patient was a girl, Mary D., aged 16, admitted Nov. 26, under the care of Dr. Page. On admission, she was in a frightful state of chorea, all the muscles of the body being perpetually in action.

Dec. 7. She was still in the same state, no treatment apparently doing any good. The chorea was constant day and night, and the movements were so violent that she could hardly at times be kept in bed. At this time she was much more emaciated than when she came in, and sordes were beginning to collect about the lips; she had not slept for three days or nights; and it seemed now that if sleep was not procured she must die of exhaustion.

At 11 p.m. the movements of the arms being for a moment restrained, I injected one-third of a grain of morphia into the cellular tissue of the neck near the clavicle.

From that moment the violence of the spasms gradually abated, and in fifteen minutes she was in a sound sleep, and snoring. The chorea completely stopped the moment she slept. In three-quarters of an hour she woke up, and was then as bad as before.

At half-past 2 a.m. I injected half a grain of morphia, as the effects of the preceding dose had completely gone off some time; muscular action quieted instantly: she was dozing in two, and slept in four minutes; she continued to sleep three hours.

On Dec. 8, the chorea was as bad as ever. Sordes about the lips increased; pulse very weak. In the evening I injected one-third of a grain of morphia; she dozed in seven minutes and had a little sleep, and the spasms were quiet for half-an-hour after it. At 1 a.m. I injected half a grain, and, as in the preceding night, she was asleep in four minutes, and did not wake for six hours and a-half.

After the 8th I found that the introduction of half a grain of morphia into the arm would always and instantly quiet the spasms for several hours; and three-quarter grain doses would give her sleep. For a few days she considerably improved, evidently owing to the sleep she obtained, and the cessation and quieting of the spasms; she took food better, and the sordes on the lips disappeared; but she ultimately died from exhaustion, and rapid wasting accompanying the formation of foul abscesses in the cheek and throat.

Case 10. *Tetanus.* William D., aged 60, was admitted in St. George's Hospital Nov. 5, 1858, with a gunshot wound of the thigh. On the 13th, he had a little wandering delirium; on the 14th trismus and other symptoms of tetanus supervened, and gradually increased during the two following days.

16th. Has had no good sleep since the spasms came on. At half-past twelve three-quarters of a grain were injected in five drops of liquid: he was asleep in twenty-five minutes, and remained asleep for the greater part of the night, totally undisturbed by the tetanic spasms, which recurred nearly every minute the whole time he was asleep.

The progress of the case did not appear to be affected by this treatment, which certainly procured sleep, but had no effect upon the spasms, from which death finally resulted.

Remarks.—In cases 9 and 10 it is interesting to observe that sleep followed the injection of the narcotic, but that the effect on the spasms was not the same in both; for instance, in the girl, the dose being injected, muscular action instantly became more quiet, and sleep generally resulted in about four minutes, no spasms taking place while the sleep lasted; and, in all probability, life was in her prolonged by the sleep obtained, and the quieting of the spasms. On the contrary, in the man with tetanus, although the brain was speedily quieted, and sound sleep of some hours procured, no effect at all was produced on the spasms, which recurred every minute during the night. May not the persistence of muscular action during sleep be a guide as to what spasms are cerebral and what spinal? especially with regard to chorea, looked on by some as an affection purely of the spinal marrow.

In such cases as tic-douloureux, sciatica, and constant or occasional pains of other nerves, a cure may follow a single injection, or if not, more or less benefit will in all probability be effected. I have had no case in which some benefit was not produced. But from the cases of this description that I have had under my care, I cannot find that localisation of the injection adds at all to the cure, except in those cases in which the mind of the patient has something to do with it, and there is a confidence alone in local treatment: from the following cases the non-necessity of localisation will be made apparent.

Case 11. *Sciatica.* In this patient the sciatica was in the left leg, but all the injections were made in the cellular tissue of the right arm. J. D., aged 70, were admitted November 24, 1858, in St. George's Hospital, under the care of Dr. Page. He had been subject to gout, and for a fortnight before, and after admission, suffered day and night from pain in the region of the left sciatic nerve. He was treated with morphia and colchicum, and then with salines and hyoscyamus, without the least good effect.

Dec. 6. I injected half a grain of morphia into the right arm at 9.30 p.m. At 9.45 I returned to the ward he was in, and found him sound asleep; and he slept all night.

7. He has no pain at all in the leg.

11. Still has no pain in the leg: he is not now restless at night but sleeps well.

12. The pain has come back again, and owing to it he had no sleep

last night. I injected half a grain of morphia again in the arm; he lost the pain immediately, and was asleep in a few minutes, and had a "beautiful night."

18. Has again had no pain for six days, till to-day, injection repeated in the arm.

This patient, from having the pains day and night, was made "well," to use his own expression, for seven or eight days together, by a single injected dose of morphia, whereas narcotics by the stomach had done no good.

Case 12. *Sciatica.* Another patient with this affection, on whom, by Dr. Page's kindness, I tried this treatment, went out cured after five injections. This patient had also taken colchicum, morphia, and other medicines, by the stomach without effect. With regard to the part injected, I twice localised the treatment in the sciatic region, and three times injected the arm, the patient each day becoming freer from pain, and stronger in his walk.

I understand that the sciatica in this patient has since returned, but not so badly as to occasion him to become an in-patient of the hospital.

Tic Douloureux. In this affection I believe that great benefit, if not a cure, generally attends the hypodermic introduction of narcotics, but that the localisation of the treatment to the neuralgic part is necessary, I do not believe; as I stated in this journal six months ago, nor have I since then found reason to change my opinion. The following case is to the point.

Case 13. *Tic-Douloureux.* A lady suffering acutely from neuralgia of many months' standing, sent for me to employ this treatment. She had taken hyoscyamus, opium, and morphia, internally, with no effect on the neuralgia: but they all, more or less, affected her head. She had also tried the endermic application of morphia. She found the endermic method, which was employed over the part affected, give her more relief than the administration of the narcotic by the stomach; but the effect lasted only a few hours, and she was as bad as ever the next day. The situation of the tic was the side of the face and head.

I injected a little more than half a grain of morphia into the arm; giddiness came on in three minutes, followed by considerable sickness, and subsequently by sleep. The pain ceased at the time, and has never since returned:* it is now between three and four months since the dose was injected.

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* In Edinburgh chiefly, and also in London, I am told that the sickness following the injection of narcotics, is often excessive, and has, consequently, caused the treatment to be less adopted than it otherwise would In all the cases in which I have employed the narcotic injection I have only once found urgent sickness produced, viz. in the case given above; and here the cause of the sickness may partly be explained thus—that the patient was a woman of highly nervous temperament, and badly affected by narcotics, however administered. The amount injected has also something to do with it. In the usual way I think the stomach is saved disturbance and irritation by the injection of the

The non-localising plan has this advantage, that no abscess results in cases where several injections are required; for example, in a patient with severe neuralgia of many years' standing, I at one time employed the injection three times a-day, varying the site each time. The patient was cured, and had no abscess whatsoever in the parts injected. Another patient, with tic-douloureux, who *would* have the injection employed locally, had considerable tenderness, and some inflammation, as the consequence. The non-localising plan, employed subsequently, caused no irritation.

It may be observed, that in the cases recorded, I have always employed morphia as the narcotic to inject; I have employed it far more frequently than any other; but have also used the following, and chiefly in neuralgia:—

Evaporated tinct. of opium; tinct. aconite: tinct. cannabis indica; concentrated liquor opii sedativus (prepared by Bullock); sulphate of atropine, and chloroform.

The solutions I prefer are those of morphia and atropine, and the evaporated tincture of opium (from one part to a third or fourth), by which means the spirit is got rid of.

How it is that these narcotics act so rapidly and effectually injected into the cellular tissue, I intend considering at some future time, and also to bring before the profession the result of further experiments on animals with other anodyne and anæsthetic agents.—*Med. Times and Gazette, March* 5, *and April* 16, 1859, *pp.* 234, 387.

24.—*Treatment of Chronic Alcoholic Intoxication.* By Dr. MARCET.—[From the long-continued use of alcoholic beverages—even long after their discontinuance, nervous symptoms, as hallucinations, trembling, loss of sleep, &c., sometimes result. Dr. Marcet, in a paper read before the Western Medical and Surgical Society, recommended oxide of zinc in these cases, giving a table of cases in which it had been used, apparently with success.]

The oxide of zinc was given in doses of two grains, twice a-day, in the form of powders, an hour after each corresponding meal. The dose was generally increased in the ratio of two grains every three days, until the patient took six or eight grains twice a-day. Thus sleep was soon induced, the trembling of the body and limbs rapidly disappeared, and the patient no longer suffered from headache or giddiness, the hallucinations vanished, and in the course of from three to six weeks the patient

cellular tissue (which is the part I always inject); and for these reasons:—1. That I have so seldom found sickness at all as a consequence. 2. Because, in one patient accustomed to 20 or 40 grains of morphia daily for years, the tympanitic and disordered state of the stomach recovered itself while the hypodermic injection was gone on with, and which never once caused sickness. 3. Because, in one well-marked case all narcotics administered by the stomach caused sickness, which was never the consequence of an injected dose, which latter, if small, quieted, and if large, caused good sleep.

had recovered from a long and severe illness. The weakness, the common symptom accompanying the disease, was very difficult to overcome, and he states that it often persisted a long while after the individual was quite well in every other respect. Another fact noticed was the complication of chronic alcoholic poisoning with bronchitis and rheumatism, in which cases the effects of the oxide were less marked. In these instances the functional disturbance of the nervous system often gave way without any improvement in the co-existing disease. Accordingly, in these cases, the author added to the treatment as soon as the effects of the oxide were exhausted.—*Med. Times and Gaz., Feb.* 12, 1859, *p.* 174.

25.—*Chloroform in Delirium Tremens.* (Under the care of Mr. Curling at the London Hospital).—On one occasion we remember seeing a large, muscular man, a labourer, brought into an hospital with symptoms of delirium tremens of the most violent character. The most powerful anodynes, frequently given, had no effect; he was strapped down in his bed, and had gloves put on his hands. He continued to struggle and rave, without intermission, from the time he was admitted, and died from exhaustion on the same evening. This astonished those under whom the poor man was placed, and a regret was expressed that any restraint at all had been practised. Had chloroform been administered in this case, it is very probable that the man would have been saved. We saw an example of delirium tremens, on the 7th instant, in the London Hospital, the patient being a stout, healthy man, twenty-seven years of age, under Mr. Curling's care. He was a clerk out of a situation, and affected with this malady for the first time, from drinking rum to excess. The symptoms were very violent, but not to the extreme degree. Drachm doses of laudanum were administered three different times in succession, without the slightest effect; then twenty-five grains of extract of hyoscyamus, with the same result. At last, it was determined to try chloroform. This had been inhaled scarcely five minutes, when he fell asleep, and continued sleeping for six hours, when he awoke, and the symptoms of his trembling delirium had vanished. Several other cases have been successfully treated, by the administration of chloroform, in the same hospital.

This form of practice in delirium tremens is by no means new, having been employed since the year 1852. Many practitioners prefer giving chloroform internally in this affection, sometimes combined with sulphuric ether; but when it is desirable speedily to obtain quietude and repose, lest the violence of the delirium should exhaust the patient and render the case hopeless, the best and safest results may be anticipated from the inhalatation of a moderate amount.

[It would be dangerous for the young surgeon to try chloroform in these cases without more instruction than he can obtain from this case. If a *sly drinker*, one who daily gets nearly drunk, be attacked by disease and be compelled to leave off has stimulants *suddenly*, before his system has had time to be stimulated by broth and other healthy food, he will very likely have an attack of delirium tremens. In this case chloroform would very probably kill him at once. He must be kept up with *small* doses of brandy and good doses of beef-tea with a little opium if you like. In another case the man is not an habitual drinker, but is of good constitution and has lately been drinking to excess; in this case chloroform will be found to be invaluable, while brandy and opium will be very injurious. The first case is one of exhaustion of vital powers, while the second is one of congestion of the brain, amounting almost to inflammation.]—*Lancet, Oct.* 30, 1858, *p.* 449.

26.—*Alcoholic Stimuli in Snake Bites.*—Dr. Addy writes, that on the western frontier, where rattle-snakes are numerous, and where physicians are often called upon to treat poisonous wounds by these and other venomous reptiles, they almost exclusively rely upon alcoholic stimulants, given in quantities sufficient to produce intoxication. The patient is not considered safe until drunkenness is produced, this being regarded by the practitioners as evidence of the effects of the poison being overcome. Dr. Addy relates a case in which the patient was entirely relieved by the free use of whiskey. —*Boston Journal.*—*Med. Times and Gazette, March* 19, 1859, *p.* 297.

27.—ON THE ETIOLOGY, NATURE, AND TREATMENT OF EPILEPSY, WITH A FEW REMARKS ON SEVERAL OTHER AFFECTIONS OF THE NERVOUS CENTRES.

By Dr. E. Brown-Sequard.

I have found that a convulsive affection, very much resembling epilepsy, may be produced in animals. A few weeks after certain injuries to the spinal cord, in the dorsal or the lumbar region, especially in guinea-pigs, fits appear spontaneously several times a day, or, at least, once every two or three days. But the most interesting point is, that it is possible to produce a fit when we choose, by simply pinching a certain part of the skin. These fits consist in clonic convulsions of almost all the muscles of the head, the trunk, and the limbs, except those muscles which are paralysed. The animal seems to have lost its consciousness, or, at least, its sensibility. There is an evident laryngismus in the beginning of the fit, and, after it, when it has lasted long, a state of drowsiness or unwillingness to move. I have ascertained that one part only of the skin has the power of producing the fit, and this part is that which covers the angle of the lower jaw, and extends from thence to the eye, the ear, and nearly to the shoulder. It is only the skin that has the power of generating the fit, as even the three nerves that send filaments to this part of the skin can be irritated without the occurrence of convulsions. When the spinal cord has been injured only on the right side, it is only on that side that the skin of a part of the face and neck has the power of inducing fits, *et vice versâ* when the injury exists on the left side. If the two sides of the cord are injured, the two sides of the face can produce fits. It is not the pain due to the irritation of the skin which causes convulsions, as I have ascertained that the degree of sensibility of that part of the face and neck is not greater than that of the neighbouring skin, and is less by far than that of some parts of the skin in one of the abdominal limbs. It is evidently a peculiar kind of irritation, starting from the cutaneous ramification of some centripetal nerves, which alone possesses the power of producing the epileptiform convulsions which are observed in animals in which the spinal cord has been submitted to certain injuries. It results from the facts which have led me to the above assertions—1st, that the spinal cord in animals may be the *cause* (I do not say the *seat*) of an epileptic affection; 2nd, that there is a mysterious relation between certain parts of the spinal cord and remote parts of the skin of the face and neck; 3rd, that epileptiform convulsions may be the constant consequence of slight irritations upon certain nerves; 4th, that the trunk of a nerve may not have the power of producing convulsions, while its cutaneous ramifications possess this power; 5th, that even when an epileptiform affection has its primitive *cause* in the nervous centres, some cutaneous filaments of nerves, not directly connected with the injured parts of these centres, have a power of producing convulsions, which other nerves, even directly connected with them, have not.

In man, epilepsy very frequently presents most of these peculiarities. As regards the first of them, it cannot be doubted that a disease of the spinal cord or of its membranes, as well as an affection of any centripetal nerve in the human body, may be the primitive origin of a real epilepsy quite similar to the erroneously-called idiopathic epilepsy. I will refer to cases recorded by Bonnet, Lieutaud, Morgagni, Musel, Portal, Esquirol, and a great many other excellent observers. The careful study of these cases shows clearly that in a number of them epilepsy has truly been generated by the disease of the spinal cord.

I do not know yet of any case in which, in man, just the same thing has been observed as in my epileptic animals. But there are only very few cases on record in which the very injury which in them has caused epilepsy has been observed in man; and in those cases in which probably this injury has existed, we either do not know what have become of the patients, or they have died before the time after which epilepsy appears in animals after the injury to the spinal cord. But there are many cases on record in which an irritation of some point of the skin or of some centripetal nerve, and sometimes even an *unfelt irritation*, has produced fits, just as, in my animals, the excitation of a part of the skin produces them. I have collected such a number of facts in this respect, that the analogy between epilepsy in man and in my animals seems to be as great as possible; and I may add that, in most cases of genuine and complete epilepsy, as well as in cases of simple vertigo, there is an irritation starting from some point of a centripetal nerve, especially from its peripheric parts in the skin or in the various mucous membranes. There is no medical man who has been in practice for a few years who has not seen some cases of this kind; but almost all the recent writers on epilepsy having considered those cases as quite special, I must insist on saying, that even in the so-called idiopathic epilepsy there may be found an irritation starting from some centripetal nerve and generating the convulsions; and I must add also, that there is no radical difference between the symptoms of the sympathetic epilepsy and those of the pretended idiopathic. I will leave aside here all the cases in which an evident irritation on a centripetal nerve has caused epilepsy, such as cases of worms in the bowels, in the biliary ducts, or in the frontal sinus; of calculi in the ureter, in the biliary ducts, &c.; of foreign bodies in the ear or beneath the skin; of tumours pressing on nerves; of decayed teeth; of necrosed bones, &c. But I must say that in several cases the peripheric origin of fits has been quite evident, as it was sufficient to press upon some part of the skin to produce the epileptic seizure. In other cases, a draught of cold air, the application of a galvanic current to certain parts of the skin, a sound, a smell, or the sight of a certain colour, was always followed by a fit.

In cases of aura epileptica there is the greatest variety in the sensations felt, and the degree and the painfulness of the sensations are not such that we could explain by them the production of convulsions. It results from a thorough examination of a great many cases of aura, that we must admit that an unfelt irritation starts, at the same time as the aura, from some centripetal nerve, and is the real cause of the epileptic seizure. We will call this irritation an unfelt aura; and it would be well, indeed, if we could employ the name of "aura epileptica" for this unfelt irritation alone, so as to distinguish it completely from the vague and variable sensations which accompany it in many cases. There are facts proving that an unfelt aura may exist without any kind of sensation, either because the first effect of the irritation has been to destroy consciousness, or because there is no irritation starting from sensitive nerve-fibres, but from centripetal nerve-fibres endowed only with the excito-motory power.

It is very important, on account of the treatment, to find out if there is an unfelt aura, and what is its starting point. In consequence of this view, the condition of all the organs of the body ought to be carefully inquired into. If the unfelt aura starts from some parts of the skin or from some organ not deep-seated, as the testicle, or some part of the mucous membrane near the skin, either the first contractions in a fit, or the most violent or the most prolonged, are found in the neighbourhood of the point of starting of the aura. If no indication of this kind can be furnished by the persons who have seen the fits, it will be well to try the application of a very powerful galvanic current, with dry conductors, on the various parts of the skin, when the patient expects to have a fit. I have in this way twice ascertained the point of starting of an unfelt aura : a fit has been produced by the galvanization of certain parts of the skin. Of course there are many cases where such a means of diagnosis ought not to be employed : every one will understand what are those cases. Another and the best means (so far as the limbs alone are concerned) to detect the existence of an unfelt aura, consists in applications of ligatures on each limb alternately. Suppose a case of epilepsy in which the fits are frequent and come at nearly fixed times, or after warnings of any kind, so that it may be known that it is to take place in a given time or nearly so: a very tight ligature is put on one limb; and if the fit does not come, it is extremely probable that it depends on the irritation of an unfelt aura; if it comes, the ligature is applied on the other limbs at other times. I am sorry not to be able to give more details in this respect; but I think it will be easy to understand how, by such a means, it may be ascertained if an aura comes from the upper part of a limb, or from a toe or a finger, and from which one.

Even in cases of epilepsy due to a disease of the encephalon, the cause of the fits may originate from some points of the skin, and the prevention of the passage of the aura, in such cases, can prevent the fits. There are four cases of this kind that I know, in three of which the disease consisted in a tumour in the brain. In my animals the same thing exists : although the alteration of the spinal cord—which is the cause of epilepsy—persists, the aura being interrupted by the section of the nerves which go to the skin of the neck and face, epilepsy, so far as I have been able to ascertain, ceases. The aura may originate from any part of any centripetal nerve, and there is no doubt that its place varies according to the location of disease in the nervous centres when it is due to such a disease.

A great many cases, in which, by various means, the aura epileptica has been prevented from going up to the encephalon, show that the fit is very often due to a simple outside irritation. Applications of ligatures, sections of nerves, amputations, &c., act in this way. We might say the same thing of the elongation of muscles (the first ones that are convulsed), and, in a certain measure, of various means of revulsion (such as burning, blistering, &c.), although the principal mode of action then consists in producing, by a reflex action, a change in the nutrition of the nervous centres, and of the nerves which are the channels of the aura.

Epilepsy seems to consist essentially in an increased reflex excitability of certain parts of the cerebro-spinal axis, and in a loss of the control that, in normal conditions, the will possesses over the reflex faculty. The base of the encephalon, and especially the medulla oblongata, is the most frequent seat of the increase in the reflex excitability, so that this part of the nervous centre is the ordinary seat of epilepsy. The disturbance in the functions of the cerebral lobes during and immediately after a fit, and in the interparoxysmal periods, is chiefly due to the alterations taking place in the brain during the fits. This hitherto mysterious coincidence of loss of consciousness, or, in other words, loss of the function of the cerebral lobes, with an increased action of the base of the encephalon, in a complete epileptic seizure, may now be easily explained. I have tried to show that the same cause that produces the first convulsions in some muscles of the neck, the eye, the larynx, and the face, produces also a contraction of the bloodvessels of the brain proper, and which contraction is necessarily followed by the loss of consciousness. I am happy to state that two very able German experimenters—Messrs. Kussmaul and Tenner, led by researches in several respects different from mine, have arrived at the same explanation. In reviewing the principal phenomena of a complete seizure of epilepsy, we find that they form a series of causes and effects, as shown in the following table :—

CAUSES.	EFFECTS.
1. Excitation of certain parts of the excito-motory side of the nervous centre.	1. Contraction of bloodvessels of the brain proper and of the face, spasm of some muscles of the eye and face.
2. Contraction of the bloodvessels of the brain proper.	2. Loss of consciousness and accumulation of blood in the base of the encephalon.
3. Extension of the first excitation, *partly* due to the accumulation of blood in the base of the encephalon.	3. Tonic contraction of the laryngeal, the cervical, and the thoracic expiratory muscles, (*Laryngismus* and *trachelismus.*)
4. Contraction of laryngeal and of thoracic expiratory muscles	4. Crying and stoppage of respiration.
5. Farther extension of the first excitation of the nervous centre.	5. Tonic contraction, extending to most of the muscles of the trunk and limbs.
6. Loss of consciousness, and tonic contraction in the trunk and limbs.	6. Falling.
7. Laryngismus, trachelismus, and the fixed state of the chest.	7. Asphyxia, with obstacles to the return of venous blood from the head and the spinal cavity.

Causes.	Effects.
8. Asphyxia, and the accumulation of black blood in the encephalon and in the spinal cord.	8. *Clonic convulsions* everywhere; contractions of the bowels, the bladder, the uterus; erection; increase of many secretions; efforts at inspiration.
9. Exhaustion of nervous power generally, and of the reflex faculty especially, except for respiration, which gradually becomes normal.	9. Cessation of the convulsions; coma or heavy sleep, after which extreme fatigue and headache.

Of course this table shows only the most frequent filiation of phenomena, and it is useless to say that there are great varieties as regards the first phenomena. The admirable researches of Dr. Marshall Hall have shown how important are the laryngismus and trachelismus, in the causation of the epileptiform convulsions. I will only add that the asphyxia, to which so great a share is due in the phenomena of epilepsy and in its most grave consequences, depends not only upon the state of the larynx, but on that of the chest; and that not only cannot the blood return easily from the head on account of the trachelismus, but also it cannot enter the chest from either the spinal canal or the head on account of the fixed state of expiration. Besides the bronchiæ themselves are often contracted; and all these causes coexist with an increased production of carbonic acid, and with a change in the circulation of the encephalon, during which the blood accumulates in the base of this organ and also in the spinal cord.

As regards the treatment of epilepsy, we will only say that the principal rule is to find out if there is an external cause—*i. e.*, if from any part of the centripetal nerves there is an irritation acting upon the nervous centres. To prevent this irritation reaching these centres, or to destroy the cause of this irritation, if it is known to exist, are the two things to be done. I only repeat that this will be found much more often than is generally supposed. Against the increased excitability of some part of the nervous centres, the best means, assuredly, are the powerful modificators of nutrition, which, I am sorry to say, are so little employed by regular practitioners—the cauterization of the back of the neck by moxas or by the red-hot iron.

Other affections very often have the same characteristic features as epilepsy, as regards their production. If I had time, I could relate a very large number of facts to prove that, much more frequently than might be imagined by most of my readers, the various forms of insanity, of vertigo, of hallucinations, and of illusions, and also extasis, catalepsy, hysteria, chorea, hydrophobia, tetanus, local cramps, and even the general paralysis connected with insanity, may be due to irritations starting from a centripetal nerve, and frequently slightly felt, or even unfelt; and that the suppression of these irritations may promptly cure the patient, just as in cases of epilepsy. Instead of a description of this kind of affection, I will give here a case which is full of interest, and which I owe to the kindness of Mr. Campbell de Morgan, who had received it from the late Mr. Standert, of Taunton, who, according to Mr. de Morgan, was one of the most original thinkers and best surgeons of his day:

Case 44. On rising in the morning, a lad, fourteen years old, was heard by his father making a great disturbance in his bed-room, who, rushing in to know the cause, found his son in his shirt, violently agitated, speaking incoherently, and breaking to pieces the furniture. Mr. —— caught the lad in his arms, and threw him back on the bed, when he at once became composed, but did not seem conscious of the mischief he had done. He said that in getting out of bed he had *felt something odd*, but that he was very well, and thought that he might have had a frightful dream, although he could not recollect it. I was immediately sent for, and the lad ordered to remain in bed until I had seen him. About five hours after, I found the lad lying in bed reading some amusing book; his tongue clean, pulse regular, countenance calm and cheerful. He said he was quite well, and wished to get up, but that his father had ordered him to remain in bed until I had seen him. I was informed, before I went up to his bed-room, that the lad had never before been heard to complain of disturbed dreams, or walked in his sleep, or exhibited any epileptic symptoms, and that his general health had been good, and all his functions regular. Finding the patient free from any apparent disease, and that he had eaten with good appetite, and no disturbance, his usual breakfast, I desired him to get up. When, sitting up in his bed, he drew on his stockings; but *on putting his feet on the floor his countenance instantly changed, the jaw became violently convulsed*, and he was about to rush forward, when I seized and pushed him back on the bed. He was at once calm, but looked surprised, and asked what was the matter with him. He assured me that he had felt no pain, had slept well, but that he "*felt odd*" when he stood up. I found that he had been fishing on the preceding day, and, having entangled his line, had taken off his shoes and stockings, and waded into the river to disengage it; but he said he had not cut or scratched his feet or met with any other accident. To ascertain this point I made him draw off his stockings, and examined his legs minutely. Not the slightest scratch or injury could be seen; but *on holding up the right great toe with my finger and thumb to examine the sole of that foot, the leg was drawn up, and the muscles of the jaws were suddenly convulsed, and on releasing the toe these effects instantly ceased.* I then closely inspected the toe. The nail was perfect; there was not the least swelling or redness in the surrounding parts, nor any tenderness or uneasiness felt when I compressed the toe laterally, or moved it held thus, in any direction; but on the bulb of the toe, nearly at the point where the circumgyrations of the cuticle centre, there was a very small elevation, as if a bit of gravel, less than the head of a small pin, had been there pressed in beneath the cuticle. There was not the least redness on this spot, nor any sensation or effect produced by passing my finger over its surface; but *on compressing it with my finger and thumb against the nail very cautiously, a slight convulsion instantly ensued.* I asked the patient if anything pricked him; He said, "No, but *something made him feel very odd.*" On examining the part well with a pocket lens, no scratch or puncture of the cuticle could be discerned. I then with a pair of scissors included and snipped away the slightly elevated part. but not so deeply as to denude the cutis beneath. In the bit of cuticle thus removed I expected to find some point of a thorn or particle of sand, but could not detect anything of the kind. I then pressed the toe in every direction; *the strange sensation was gone, and never returned.*

I do not know that any member of the patient's family had ever been under treatment for insanity, but two of his uncles, and I believe an aunt, were suicides, and the patient himself, many years afterwards, was "found drowned" by the cautious verdict of an inquest.—*Lancet, Dec.* 4, 1858, *p.* 571.

28.—ON TETANUS.

By John Erichsen, Esq., Surgeon to University College Hospital.

[A remarkable case occurred lately at University College Hospital; a boy of thirteen, was admitted with sacro-iliac disease of six months standing: an issue was made over the back of the articulation in the usual way, by means of potassa fusa, and after the separation of the slough, (about the fifth or sixth day), a couple of issue-beads were introduced. In a day or two, slight stiffness of the jaws, and tension of the sterno-mastoid appeared, and in three days he died, during a tetanic paroxysm. This case forms the text of a clinical lecture by Mr. Erichsen on tetanus, of which the following is an abstract.]

1. *Cause.*—Individuals may, doubtless, be seized with tetanus, although not having any breach of surface; but in the vast majority of cases, the affection comes on as the result of wounds of some description, and these, very generally, wounds of a trivial character. Thus it does not so commonly follow compound fractures of the thigh or leg, as it does minor injuries of the extremities; nor is it so frequent after amputations, resections of joints, or the removal of large tumours, as it is after many minor operations; so that it may be booked upon as most commonly resulting from minor surgical injuries and operations. On looking over a list of the cases which have been under my care in this hospital, I find that, in not

one has tetanus come on as the result of the major operations, or more severe accidents, but such injuries as punctures, and compound fracture of the fingers or foot, lacerated wound over the wrist, or a burn on the trunk, are amongst the injuries giving rise to it. So far as operations are concerned, although it may certainly occur after the major operations, it has generally followed such operations as those for varicocele, fistula in ano, ligature of piles, &c., all of which are quite as liable, if not more so, to be followed by tetanus, as the severest operations in surgery.

With regard to the general causes of tetanus, it is no doubt predisposed to greatly by the season of the year, and by epidemic constitution. At those periods and seasons when there are great alterations of temperature—when hot days are succeeded by cold nights—tetanus becomes frequent. In hospital practice there may be no case for months, then several may occur in rapid succession. The week before this boy died, I saw, not a quarter of a mile from this hospital, another case which also ended fatally. The circumstances in which the patient is placed, exercise great influence; it may occur in the old as in the young, in the weakly as well as in the robust. So far as my experience goes, it is more frequent amongst young adults and elderly people than at the middle period of life; more frequent amongst the weakly than the robust. Indeed, when a person apparently in robust health is attacked, it will generally be found that previously to the supervention of tetanus, he has been subjected to some depressing influence—has been out of health in some way, and has lost tone and vigour.

One of the most important causes of tetanus, especially in military surgery, and, probably, a not unfrequent one in civil practice, is exposure to alternations of temperature and currents of cold air.

2. *Nature.*—The exact nature of tetanus is an unsolved question. Nothing appears more mysterious than an affection such as this, which often seizes an otherwise apparently healthy person suffering from some slight injury, with the more violent convulsive spasms terminating in death in three or four days, or in even less time than that. We have to inquire into the condition of the nervous system, on which such a disease as this is dependent. On examining the brain and spinal cord, we find nothing special to the affection—no lesion which would enable the most experienced pathologist to say that the person had died of tetanus. It is true that we often find some congestion, or softening, as in this case, just above the cauda equina, or a large amonnt of serosity in the ventricles or subarachnoid space, which may be turbid or bloody; but all such appearances are common to other diseases besides tetanus, and none of them will enable us to assert the existence of tetanus during life. Look at the brain and spinal cord before us. They are to all appearance perfectly healthy, with the exception of some slight congestion, and a small softened patch in the cord, just above the cauda equina. They present no

special appearance, no sign by which the acutest pathologist could, by any examination, anatomical or microscopical, say that they came from a tetanic patient. Finding no structural lesion post mortem, medical men have been in the habit of calling this, in common with other diseases of which the exact cause is alike unknown, a "functional disease." But the term "functional disease" is only used as a cloak to ignorance: there is no such thing as a functional disease, and the person who uses the expression merely means that he does not know the organic lesion on which the disorder depends. Every function is the result of the action of an organ; every derangement of a function is the result of the derangement of the corresponding organ; and no function can be deranged without previous or coexisting derangement of the organ whose action constitutes the function. As pathology advances, the class of "functional disorders" becomes less and less.

There is in traumatic tetanus, I believe, always a certain condition of the nervous system to be met with, if carefully looked for—namely, an unhealthy state of the nervous branch, or twig, running from the wound. This twig will be found implicated in some way—congested, inflamed, infiltrated; its neurilemma thickened, softened, and discoloured, often for a considerable distance from the wound. I have never failed to find this when it has been carefully looked for. In the present instance, a cutaneous branch was found lying bare and inflamed in the bottom of the issue wound. In many other cases I have seen the same. Thus, in the case of a girl who had tetanus, consequent on a small punctured wound in the inner side of the thigh near the knee, a branch of the internal cutaneous nerve was found in this condition. I have seen injury to the internal plantar nerve, by treading on a rusty nail, followed by tetanus, and the nerve after death found irritated and inflamed. A dorsal cutaneous nerve was implicated in a case of tetanus following a slight burn on the back, and the external cutaneous branches of the musculo-spiral were affected as high as the bend of the elbow, in a patient who died from tetanus following injury to the thumb. A similar condition of these nerves was observed in a man with lacerated wound over the wrist. These and other similar cases which have fallen under my observation, clearly demonstrate, that although we may fail in discovering any special lesion in the central nervous system, yet that in most, and—so far as my experience goes—in all cases in which the examination is carefully conducted, it will be found that a nervous twig connected with the wound is irritated and inflamed; and this seems to be the starting point for this so-called functional disease. An organic lesion, not central, but peripheral, still exists, as essential to the production of the affection.

3. *Treatment.*—With regard to the treatment, I need say very little, and that little is in no way satisfactory. The case we are now considering followed the usual course of such attacks, beginning with

stiffness of the muscles supplied by the portio dura, violent general spasms coming on in the course of twenty-four hours, and death occurring between the fourth and fifth day. More than half the cases of tetanus die before or on the fifth day from the commencement of the spasms. If the patient survive that time, the symptoms tend to become milder, the disease may wear itself out, and recovery follow. I have seen death occur in less than thirty hours, and as late as the twentieth day; so that the fact of the attack being very chronic is no proof of its innocency. Acuteness of attack, however, is a sure sign of great danger. So, also, the sooner the symptoms come on after the infliction of an injury, the greater is the danger, and the more speedy the fatal issue.

In considering the treatment of tetanus, we must divide it into that of the acute or active, and of the chronic or subacute form. In the treatment of *acute* tetanus, I believe that no remedy known exercises the slightest *curative* influence. To drug a person affected with active acute tetanus, is, in my opinion, utterly useless. I have never seen nor heard of a case cured by the routine treatment, the sooner we abandon which, I think, the better. Calomel and opium in large doses, the vegetable sedatives, belladonna, conium, henbane, opium, or camphor, largely administered, are all unavailing (when the disease is acute) in retarding, mitigating, suspending, or arresting its progress. If we are ever to cure acute tetanus, we must give up this line of treatment, which we have been taught by experience to be useless, and endeavour to discover some new principle to guide us in the management of this affection. Yet acute tetanus may be cured, though not, I believe, by medicine; and much may be done to mitigate suffering. The first thing to be done is to divide the nerve leading from the wound, where it can be found and isolated. The wiser plan would be to divide the trunk of the nerve high up in the limb, so as to get beyond the sphere of the local irritation, which appears to be the chief organic lesion discoverable in these cases, Patients have been cured by this means. Mr. Murray (the surgeon who tied the abdominal aorta) relates the case of a midshipman, who received a wound in the foot from a rusty nail; tetanus came on; Mr. Murray divided the posterior tibial nerve, and the patient recovered. Such cases give hope of being able to save others, and this operation should therefore be done at once, where practicable. It is not, however, by any means, invariably successful. Last session, I divided without success, however, the branches of the external cutaneous for tetanus, following a wound of the back of the hand.

In the general management of the patient, we must remember that we have an exhausting disease to deal with; the patient sweats profusely during the intervals of the spasms, and will soon sink if not supported. All external causes of excitement should be removed from about the patient; he should be kept perfectly quiet, his bed surrounded with screens or muslin curtains. In addition to these means the occasional inhalation of chloroform will alleviate, though it will not cure, acute tetanus.

In *sub-acute* and *chronic* tetanus the case is different. If the patient survive the fifth day, and the affection assume a chronic or sub-acute character, we may entertain some hope of his recovery. He should be kept quiet—his strength supported. Terebinthinate enemata, calomel with opium, belladonna, or conium, are the remedies to be employed. Many patients have got well under, and seem to be cured by, this plan of treatment. Cannabis indica, æther, and chloroform, have also been recommended, but are not alone to be trusted to. At all events, calomel and opium, and, if you like, belladonna also, may be given with advantage. You may also feel disposed to try the effect of the sedative alkaloids. I am not aware of any cure having resulted from their use, but atropine, applied liberally, has been beneficial by mitigating the pain which the patient suffers. Such alkaloids, or the corresponding vegetable extracts, may therefore be applied with benefit.

To sum up: it appears that the best prospect of a cure is to be found in the division of the nerve leading from the seat of injury, wherever this is practicable; in the employment of proper hygienic and dietetic means; in the removal of all sources of external excitement and irritation, local and constitutional; and in the administration of moderate doses of calomel and opium, with turpentine enemata. Such measures as these, I say, appear to be more rational, and to hold out a better chance for the patient, than the empirical administration of specific sedatives, which experience has repeatedly proved to be unavailing in curing the disease, and often even in mitigating its sufferings.—*Lancet, Feb.* 26, 1859, *p.* 207.

29.—ON THE TREATMENT OF TETANUS.

By Campbell de Morgan, Esq., Surgeon to the Middlesex Hospital.

In a valuable report by Mr. Poland of "seventy-two cases of tetanus occurring in Guy's Hospital," published in the 'Guy's Hospital Reports,' the author adopts the view generally entertained with regard to the efficacy of remedies in this disease.

"We can hardly," he observes, "call the medicines administered in the recoveries 'remedies;' they appear merely to have rendered the patient more able to fight against the battle of spasmodic action. Tetanus runs a certain course; it has its period of accession, its height and intense activity, and its gradual decline; it often kills before it reaches its active point; and often kills by exhaustion during its decline. Nothing seems to check its regular course; there is no control in its unvarying and undaunted career; it will have its sway. All we can do is to enable our patient to weather out the storm, by giving him as much strength as possible, and not adding fuel to the fire by all sorts of applications and internal remedies, which have over and over again signally failed.

This, which was the opinion of Hunter, and which is probably the opinion of most who have tried to combat this terrible disease, has been but too well justified by experience. But it is one which should not be pressed so far as to drive us to the conclusion that, because as yet there has been only failure, we must not look forward to success. On the contrary, should we not rather endeavour, by repeated experiment, to find some remedies from which positive results may be obtained? With a view to leading the profession to a more efficient trial of remedies, which, judging from the reported cases, have hardly as yet been fairly tested, the following case, with the observations upon it, has been drawn up:

Henry Blackwin, aged fifteen, employed at a coal shed, was admitted into the Middlesex Hospital on the 16th of September, 1858, with symptoms of trismus. He is short, but well formed and strong, and has had, by all accounts, very good health.

On the 30th of August, while walking, he trod on a large rusty nail, and the point of it pierced through the thin boot he had on, and ran into the right foot just at the base of the middle toe. There was little bleeding from the wound.

On the following day he came to the hospital, walking on the heel of the wounded foot in consequence of the pain, and aided himself with a stick. A poultice was ordered; a gathering formed in the part, which broke on the 4th of September, and the relief was so great that he was able to walk about. On the 7th the place was quite healed, and he discontinued his attendance. On the 8th he felt a stiffness about the jaw, which got so much worse that on the 12th he was unable to open his mouth. He felt some stiffness at the back of the neck, and pain down the back to such an extent as to interfere with his walking. He had some difficulty in swallowing. On the 13th he took to his bed. On the 15th he was unable to open his mouth or move his head, but he had no twitchings in his limbs. For two or three nights he had not had any sleep, but dozed off occasionally in the daytime. The bowels had been opened daily.

On the morning of the 16th he was brought to the Hospital; the trismus was very severe, and he was unable to move his head in any direction. He perspired freely, and complained of great pain down the back; but there was no opisthotonos. The abdominal muscles were very tense; pulse, eighty. He was ordered a castor-oil injection, and linseed-meal poultice down the back, to which was added a lotion of chloroform, aconite, and opium. A draught containing paregoric and the liquor opii sedativus was given every six hours; broth diet and strong beef-tea.

The injection only brought away a few scybala. At about ten p.m., on waking from a sleep of two hours, he had a spasm, which caused slight opisthotonos and great difficulty of breathing. The spasm lasted only a short time, and was followed by a copious perspiration. He slept afterwards for two hours.

17th. Feels more comfortable, is in less pain, and the expression of the face more natural.

Ordered: Olei tiglii, ♏j statim; tinct. aconiti, ♏v 3tiis horis; mist. vini gallici, ℥ij 4tis horis; essence of beef-tea, two eggs, and milk Oj.

18th. Has had a fair night; but the trismus is more marked, and there is more pain down the back; the abdominal muscles are again very rigid. There is no pain in the foot.

He was in this condition when I first saw him on my return to town. Hitherto he had been under the care of my colleague, Mr. Flower. The symptoms since the morning had been more marked, and were gaining ground. For reasons hereafter mentioned, I ordered him at once the one-tenth of a grain of strychnine every two hours, the symptoms to be carefully watched, and the medicine to be omitted so soon as any effects from it were observed. The diet to remain as before.

In the evening the muscles of the back were very rigid; he was unable to bend his knees, and there was from time to time slight opisthotonos. He complained of twitchings in the thighs, which prevented his sleeping. These symptoms becoming more marked, the medicine was discontinued after the second dose.

19th. 1 p.m. The symptoms are more marked, the spasms at times being very severe, though during the night he had an hour or two of sleep. Ordered to resume the medicine.

10 p.m. The spasms have been increasing in severity. He has had six or seven violent paroxysms during the day, and has had continued suffering; pulse, one hundred and six; face and shoulders perspiring freely. The medicine to be taken during the night in half doses (one twentieth grain of strychnine.)

20th. Has had no continued sleep; on dozing off has been startled by violent spasms of the hands and arms; the body rigid throughout. This morning at about five had a paroxysm so severe that he was near death from asphyxia. He has great difficulty in swallowing. The pains down the thighs and in the abdominal muscles very severe. A turpentine enema to be used, and the strychnine to be given in its former dose, one-tenth of a grain.

The enema acted well, but the spasms were increasing in frequency and violence. After the second dose the medicine was stopped; the pulse, one hundred and thirty-five; the catchings in the hands constant.—Eleven, p.m. The symptoms were now becoming so urgent that the strychnine treatment could not be longer tried. It was evident that though it was producing its own specific effect, the paroxysms of the disease were in no way relieved, nor were the chronic spasms at all diminished.

That the symptoms were due in great measure to the disease was evident from the fact that the paroxysms did not correspond in time of severity with the administration of the strychnine. The symptoms increased in severity for fourteen hours during which no medicine was given; and at the time when the paroxysms were most severe, they became milder during periods when the medicine was still being given; whereas, when strychnine is the cause of similar symptoms, the fits correspond in time and severity with the reception of new portions of the poison. During the whole time, moreover, the chronic rigidity of the trunk and lower limbs was becoming progressively more intense.

The strychnine, therefore, was left off, and the patient was again put upon aconite, of which five minims of the pharmacopœia tincture were given every two hours, and as the pains in the thighs were very severe, a liniment composed of equal parts of tinct. aconite and camphor liniment was directed to be rubbed into them.

21st. Has had some pretty severe attacks of spasm during the night, but says he feels more comfortable; the pains down the thighs are very acute. The whole body is still quite rigid. Has taken seven doses of the tincture, but feels no effect from it. It was ordered to be continued in eight minim doses; pulse, ninety. In the evening he complained of a feeling of soreness in the throat; otherwise, during the day, he had been freer from spasms. Ordered to take only half-doses (four minims) during the night.

22nd. Has had a somewhat better night, without any severe paroxysm; but the body is still perfectly rigid, and the pain is as severe in the thighs; less perspiration; pulse, sixty. Tinct. aconiti, ♏viij 2ndis horis.

23rd. Remains much the same, but his appearance is better; to have a turpentine enema, and to take Fleming's tincture of aconite, ♏v every two hours, as before.

24th. The pain in thighs continues so severe that an enema containing ♏x of tinct. aconiti was ordered, but it did not relieve him. In other respects he is doing well. He has lost the active spasms, but the chronic rigidity is as great; pulse, sixty; has no sensations of pricking in the hands, or any unusual feelings in the body generally. An ointment of one part of ext. belladonna and two of opium was ordered to be rubbed into the thighs, and this gave him some relief.

From this time the improvement was progressive, the countenance becoming more natural, and the pain and anxiety diminishing. The pulse remained steadily at from sixty to sixty-five, but he had no symptom indicative of the large quantity of aconite he was taking. On the 27th the medicine was given every four hours only; on the 28th he could open the mouth a little; the aconite was given every six hours, and on the 29th three times a day. He continued to take the medicine to this extent till the 4th of October, when it was left off altogether. At this time he could feed himself and move his limbs freely; the pain had entirely left him; the abdominal muscles were still tense; the countenance natural. A little hardness about the abdomen remained for some time longer, and it was not till about the tenth that he could open his mouth freely. He was kept in the hospital till the 2nd of November, and was discharged in perfect health.

My colleague, Dr. Goodfellow, called my attention to a case which he had seen, where the effects of aconite were very marked. The patient was under the care of Mr. Page in the Carlisle Infirmary. The disease was caused by the irritation of a gun-shot wound of the fore-arm, and the symptoms, which increased rapidly after their first appearance, were severe. On the third day after the stiffness in the jaw had been noticed, Mr. Page began the use of Fleming's tincture of aconite, and it was continued for thirty days in greater or less quantity according to the recurrence of the symptoms, which for the last fortnight were of a very mild character, and were only severe for the first six days after the medicine was given. But it is remarkable that on all occasions the symptoms were subdued after the aconite had been fairly given. For example, on the day on which the tincture was first given "the tetanic spasms were constant and severe; the muscles of the abdomen were rigid and unyielding, and those of the inferior extremity were so stiff as to render it very difficult to flex the limbs. At noon, a turpentine injection having been first administered, three minims of the tincture of aconite (Fleming's) were given, the effect of which became very speedily manifest, and in half an hour there was an almost total remission of the muscular spasm. Three p.m.—The pain and spasms having again returned with increased intensity, producing a slight degree of opisthotonos, four minims of the tincture were administered, which produced the same speedy and marked effects as the former dose. Six p.m.—The patient has been comparatively easy since the last dose, but there is now an evident disposition to relapse. Four minims to be given immediately, and to be repeated every hour until some decided effect is produced, the patient, of course, being carefully watched, in order that the remedial measures may be adopted should symptoms of poisoning become apparent. Ten p.m.—Three doses have been given—in all nineteen minims between twelve and eight o'clock; at present there is a complete cessation of the pain as spasms, which, however, did not yield until after the third dose had been taken. The system is now evidently under the influence of the aconite." And so during the continuance of the disease, though at times he was alarmingly affected by the medicine, the severe tetanic symptoms were constantly subdued.

In the present case, as in that related by Mr. Page, the questions may fairly be raised, whether the disease really yielded to the aconite, or whether a recovery would not have taken place under any other recognised plan, or even without treatment at all? Of course no answer can be given to the latter suggestions; but there are, I think, strong grounds for believing that the aconite was in this case the efficient agent. Dr. Fleming has described accurately and minutely the physiological effects of this poison on the system, and his statements have been corroborated by all subsequent observers. I frequently use the ordinary tincture in doses of from four to eight minims three times a day, and with this quantity the peculiar effects of the aconite usually manifest themselves speedily. Dr. Fleming says, that after a five minim dose* has been given there is a feeling of warmth, first in the stomach, then over the body, with numbness, tingling, and a sense of distention of the lips and tongue. There is a sense of tingling also at the tips of the fingers; slight muscular weakness, with indisposition for exertion, mental or bodily; weakness of pulse; and diminished frequency of pulse and respiration are also observed. If a second dose of five minims be given two hours after, the tingling extends along the arms, and the sensibility of the surface is impaired; the pulse becomes still lower and less frequent. There is great muscular debility, with giddiness and confusion of sight, and the person sinks into a lethargic condition, evinces great disinclination to be disturbed, although he rarely falls asleep, and complains much of chilliness, particularly in the extremities, which are cold to the touch. On the administration of five minims more, two hours after the last dose, these symptoms are greatly increased—lancinating pains in the joints are felt occasionally, headache, vertigo, and dimness of vision more marked. The pulse sometimes falls very low, but more frequently rises to seventy or eighty, and becomes small, weak, and probably irregular. The surface is moist and still more reduced in temperature. Sickness may now come on. Beyond this the experiment is attended with great risk. Many other symptoms are at times produced; and Dr. Christison has mentioned griping and diarrhœa as occasionally present. In some cases, too, Dr. Fleming has noticed that great insensibility to the influence of the remedy is manifested.

Now there is one fact which must always be borne in mind in administering narcotic and antispasmodic, as well as some other remedies. So long as their effect on the system is the arrest of some morbid action, so long, as a general rule, will their ordinary physiological influence on the system be suspended. I know no better illustration of this than in the action of opium on phagedæna. I have for years past relied exclusively on this remedy; and the only guide which I have followed in respect to the amount of the opium to be given has been the effect upon the disease, its arrest, and the return of healthy action. Thus, from a scruple to forty grains of opium have not unfrequently been daily given to patients unaccustomed to its use, without the manifestation of any one symptom characteristic of the influence of the medicine upon the system. There has been neither drowsiness nor torpidity of the bowels, nor loss of appetite, nor contraction of pupil; in short, excepting that the local disease has been subdued and healthy action restored, there has been nothing to indicate that the patients were taking what under ordinary circumstances would have proved dangerous quantities of the drug. Sir Henry Holland has remarked, in relation to the effect of opium when given for the relief of acute pain or spasmodic action, that "It would seem, however vague the expression, that the medicine, expending all its specific power in quieting those disorders of the nervous system, loses at the time every other influence on the body. Even the sleep peculiar to opium appears in such instances to be wanting." That this is the case in tetanus itself, as in other painful nervous affections, is too well known to require comment; and such instances are familiar to all practitioners. And so with other medicines perhaps, as in the case of calomel in pericarditis, in which disease, as Dr. Latham and Dr. Seymour have pointed out, enormous amounts of the drug will be borne without the system becoming affected; or in that of iron in erysipelas, where the remedy exerts its almost specific influence only when given in quantities far greater than are necessary to produce an ordinary alterative or tonic effect.

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* Dr. Fleming's tincture is more than twice as strong as that of the London Pharmacopœia.

On the conviction, then, that our limit to the use of medicines in some forms of disease is not to be fixed by the boundaries within which they must for safety be restricted in healthy states of the body, the aconite was in this case given in larger quantity daily than has perhaps ever before been tolerated. One drachm of Fleming's tincture, equal in strength to more than double the quantity of the best pharmacopœal tincture, was taken continuously for three days; and we find that in the course of ten days, three drachms of the pharmacopœal tincture and five drachms of Fleming's tincture were taken without the manifestation of any effect on the system, except the rapid lowering of the pulse from 135, and its steady maintenance at 60 in the minute, the patient's natural pulse being from 75 to 80. But from the time when the pulse began to fall, the boy had no convulsion, and there was a progressive diminution of the chronic rigidity. In Mr. Page's case, although the effects of the aconite upon the system were after a time very marked, yet it was seen that very large quantities were tolerated before they were induced. Thus, "on the 15th December, this patient took in eight hours nineteen minims of Fleming's tincture; on the 16th, thirty-two minims in fourteen hours; on the 17th, twenty-five minims in seven hours; and on the 20th, twenty minims in two hours.

It seems to me that in these cases we must adopt one of two conclusions—either that the patients, as is sometimes the case even in man, were not susceptible of the influence of aconite, or that the energy of the poison was held in check by the disease, which physiologically implies generally that the disease was controlled by the medicine. It is quite contrary to all that is known of the action of aconite, to suppose that the system had in so short a time become tolerant of the poison, nor can the notion be entertained that the medicine was not absorbed. The potency of the tincture employed in the present case was unquestionable; the tip of the finger moistened with it and applied to the tongue, produced at once tingling and numbness, with slight sensation of giddiness.

To determine whether in the present instance there existed any idiosyncrasy which gave the lad immunity from the effects of this agent, some trials were made on him about three weeks after all the symptoms of the disease had disappeared. On the 28th of October, five minims of Fleming's tincture were given and repeated in two hours. No effect followed the first dose. Shortly after the second dose, he complained of headache and pain in the bowels. He went to bed and said he felt chilly, but the skin was found to be hot and moist. The pulse was quickened. Next morning, he had a little diarrhœa, and all the disorder disappeared. No satisfactory conclusion was arrived at, for all these symptoms might have arisen from an accidental attack of indigestion. On the 30th, the tincture was given in the same way. No effect was produced, and he was not conscious that he had taken anything. On November 1st, a trial was again made, with directions that if no effect followed the second dose, a third should be given two hours after it. After the third dose, the symptoms of aconite poisoning were very marked. The forehead was cold and clammy; he complained of great chilliness, though the body under the bedclothes was warm and perspiring profusely; the pulse was quickened and irregular. The headache and pains in the bowels were again present, and he complained of tingling sensations in the arms and hand, and in other parts of the body. On the following morning he was as well as usual. It was clear, then, that larger quantities than ordinary were required to produce the usual effects; but those effects were produced actively enough when a certain quantity was taken. While the tetanus was present, he took the same doses every two hours for days together, and no one can doubt that a far less amount must have proved fatal had the disease not been present. Still, the slowness with which the aconite acted will explain why so much more was borne in this case than in that recorded by Mr. Page.

The question naturally arises, why should stress be laid on the fact of such large quantities of aconite being tolerated, when, as is so well known, opium and other narcotics are taken in enormous quantities without effect in this disease? But have we not really been seeking from opium results which it is not calculated to effect? All the foregoing remarks apply undoubtedly to opium and other narcotics. In most cases they will be borne to an extraordinary extent before their effects are manifested. But experience has proved what our knowledge of the action of opium would lead to us to expect, that but little effect is produced by it upon the essential character of the disease. If the opium relieve pain and induce sleep, it tends to prolong life by taking away some secondary causes of exhaustion, and therefore in chronic cases has no doubt often saved the patient by helping to sustain the system until the disease has worn itself out. In no instance, however, that I am aware of, is there any evidence that it has directly arrested the muscular spasm. The action of opium and that of aconite are quite distinct from one another. Opium is primarily a stimulant, and although if applied directly to muscular tissue it paralyses it, yet its effect on the muscular system, when acting through general absorption, is principally the result of coma, the exercise of the will over the muscles being more or less removed. Not unfrequently, and especially from morphia, convulsions are present similar to those of tetanus. Its influence is exerted on the brain especially, little, if at all, on the spinal cord. But the primary and peculiar effect of aconite, conium, &c., is muscular paralysis, the brain being only secondarily affected, the influence of the poison being exerted mainly on the cord.

As, then, all the phonomena of tetanus indicate an affection of the cord an irritation giving rise to muscular spasm, the pain being merely a consequence of it, we should naturally look for relief to those agents which diminish the irritability of that part of the nervous centres which controls the reflex muscular actions, not to those which act on the brain or diminish sensibility. In Mr. Page's case, we have distinct evidence that the muscular spasm was controlled by the aconite, and inferentially I should assume that the same must have been the case in the present instance.

In the following case, my colleague, Dr. Stewart, employed conium, which the investigations of Dr. Christison have shown to act like aconite, primarily on the spinal cord. The form used was the extract prepared by Taylor. Many of the extracts in common use are, as is well known, nearly inert.

A man was admitted into the hospital on the 7th August, 1858, with severe and frequent paroxysms of tetanus, and with permanent locked jaw. The symptoms had set in eight days before. On the 10th, he began to take Taylor's extract of conium, and continued its use in five grain doses every two hours, and afterwards every hour, until the 26th. During this period, he took no less than two ounces and a half of the strongest form of extract, without any indication whatever of the physiological effect of conium, but with simply a gradual diminution of the tetanic symptoms. This of course was not an instance of the poison remaining unabsorbed in the stomach as has been seen at times with opium. I should consider that here the agency of the conium was directed towards the counteraction of the morbid condition, and that hence its normal effects were not manifested.

The object of the foregoing remarks is to induce those who have opportunity to give a full and complete trial to aconite and other medicines which have a like effect on the nervous system. In looking over the records of cases in which such agents have been given, it appears that generally the ordinary doses have been administered at long intervals. It has been by some assumed that because no benefit has been derived from them when so employed, that therefore no good was to be expected from them at all. There is a feeling, too, very prevalent, that though cases of tetanus sometimes recover, yet that the remedies employed have little to do with such a result. Nor is this surprising, considering the disappointment which has so often followed the more extended use of medicines which at first seemed to promise favourably. The same disappointment will perhaps follow the future employment of aconite. But in a disease so terrible and so hopeless as tetanus, any encouragement, however slight, will be acceptable.

There is one other point in the treatment of tetanus to which allusion may be made. It has been generally thought that free action of the bowels should be kept up by means of powerful purgatives. From cases recently reported, indeed, this case does not appear to be now so generally the rule as formerly. My own belief is that excepting as a preliminary step to remove any matters which may be lodging in the bowels at the time of the attack, no benefit attends the practice, and that often harm is done by keeping up irritation in the alimentary canal, when our object should be to ensure as quiescent a state of the whole system as possible. In a case under my care last year, in which the symptoms were very mild, although it terminated fatally after nearly a month's duration, the bowels were allowed to remain quiet for the first nine days, purgative medicine was then given, and a free action of the bowels obtained, but the general symptoms were aggravated, and this was the case whenever the purgatives were used. Great relief is found from the use of enemata, however, especially those with turpentine. In the present case, the bowels were emptied by this means two or three times only during sixteen days.—*British and Foreign Medico-Chirurgical Review, April* 1859. *p.* 486.

30.—*Chorea and Rheumatism.*—Many physicians—amongst whom may be mentioned Dr. Addison—believe that there is a connexion between rheumatism and chorea, the latter being the result of the former. Clinical experience proves this to be true in very many instances. To know that chorea supervenes upon rheumatism is important as a guide to treatment. We can call to mind a patient under Dr. Addison's care at Guy's Hospital, in whose history the previous existence of rheumatism, although suspected, could not be positively determined She was apparently dying one evening, when seen by Dr. Bealey (then medical registrar to the hospital), but the next morning he found her sitting up in bed ; this speedy improvement having occurred under the use of sedative doses of colchicum, ordered by Dr. Addison the day before.

[We should imagine that no fact in pathology is better established by experience than the connexion between rheumatism and chorea. We never see a case of acute chorea without carefully examining whether there be a rheumatic history. In some cases there may be, of all symptoms, only one leading to this suspicion, viz., urine highly loaded with lithates ; if there be no febrile state to account for this state of urine, though not in itself actual evidence, it is in most cases highly presumptive of the existence of the rheumatic state. In one case we have seen chorea and loaded urine the only symptoms leading to the detection of acute pericarditis.]—*Lancet, March* 19, 1859, *p.* 288.

31.—ON COUP DE SOLEIL, OR HEAT APOPLEXY.

By James Ranald Martin, Esq., F.R.S.

The suddenness and fatal character of the seizure, leading as it so frequently does to the speedy death of men previously in health, and in the midst of active employment, necessarily implies a defective knowledge of the earlier and less remarkable symptoms and stages of the disease. But vertigo and headache, with sense of burning in the eyes, a full and frequent pulse, vomiting, great heat of skin, and a devouring thirst, oppressed respiration, swollen face, lividness, sinking of the pulse, clammy sweat, exhausted nervous energy, faltering of the tongue, coma, convulsion, and speedy death,—these constitute the course of events in the true heat-apoplexy: the tale is soon told.

The gorged, apoplectic condition of the lungs, as of the brain, is made apparent during life, by the oppressed and difficult breathing, the lividness, coma, and convulsion, with the "curious catching at the chest"—a *besoin de respirer*—observed by various of our surgeons. A medical officer, a survivor from two attacks of heat-apoplexy, has stated to me that his greatest distress arose from constriction and oppression of breathing. Overpowered by these feelings, he fell off his horse, but did not altogether lose consciousness. It would seem as if the sun-stroke in some persons produced pulmonary engorgement and apoplexy, and in others the cerebral form of that disease. Others, again, have mentioned pain along the spine as occurring wtih intense head-ache, and that the former pain proved the more enduring of the two, recurring on subsequent occasions of exposure to the sun, while the head remained free from pain or giddiness. There is great and peculiarly intense heat of the epigastrium, with much oppression of the respiratory and circulating functions, all indicating lesion of the great central ganglia, analogous to that of the most concentrated forms of remittent fever; in fact, when the seizures are of the milder nature, the case proceeds into the stage of fever. The differences in the symptoms and progress of the ardent fever of the hot season in Bengal, and of the heat-apoplexy, consist principally in the more defective aëration of the blood in the last-named; in the consequent stagnation and spoiling of the blood in the lungs and brain; in the greater rapidity of the processes which lead to destruction, attaching to the disease. In the most aggravated forms of heat-apoplexy, the morbid changes run their course in a few minutes apparently, and in cases of less fatal tendency in a few hours; while in the most severe forms of ardent fever, those changes, whether favourable or otherwise, are much longer in arriving at their termination. In the worst forms of the former disease, death comes, in fact, with all the rapidity of strangulation or of suffocation.

Pathology.—The post-mortem appearances in this disease vary remarkably; so much so, indeed, as to show that out of several casualties, the causes of death are different, the inconstant nature of the morbid results depending on the constitution, condition of the blood, the duration and intensity of the solar exposure, the amount of fatigue, the habits of life, and the duration of the disease.

In all the recorded instances of heat-apoplexy, we have perceptibly presented a great, and, to the European, a most unnatural elevation of the external temperature, a proportional rarefaction of the air, and a consequently diminished supply of oxygen at each inspiration; a resulting deterioration or venalized condition of the blood; a depression of the nervous functions, with augmented animal heat, and an impacted skin. Malaria and other atmospheric impurities, with their consequences, are occasional accessories, with the superaddition also of fatigue and its results. These circumstances, often acting on a system previously injured by improper diet and other intemperance, by disordered or diseased visera, and defective excretion, will go far to account for all the phenomena of this suddenly fatal disease. The condition of the lungs, heart, and brain, immediately resulting from the extremely rarefied air and intense solar heat, appears to be one of extreme venalization of the blood, with acute congestion at first, proceeding rapidly to a passive congestion and greater depression of the nervous and vascular energies, and to consequent narcotism of the lungs, heart, and brain.

A great majority of the favourable cases which occur during a march under a May tropical sun, present a mixed condition, partaking of the sun-stroke, or cerebral syncope, at first proceeding rapidly to congestive apoplexy, and ending in feverish reaction, or sun-fever; those who die outright being extinguished by the shock to the brain, heart, and lungs. In persons who are seized in the shade, or under cover, again, the symptoms generally advance with diminished rapidity comparatively, the patient complaining of feverish debility in the morning, and being found in a state of stupor in the afternoon. The more or less rapid course in each description of case will generally determine the post-mortem results, the first-mentioned cases, owing to the extraordinary force and quickness of the shock, and of the consequent cerebral syncope, presenting but slight traces of disease within the cerebral cavity, but exhibiting intense pulmonary engorgement, ending sometimes in pulmonary apoplexy; while in the last-named cases we shall find the vessels of the dura mater gorged almost to bursting, and the lungs more or less congested. Sometimes we shall find a copious and extensive serous effusion on the surface and within the ventricles of the brain; while in many of the cases tabulated by Mr. Marcus Hill, and mentioned by other authors, enormous congestion within and without the cranium was generally observed after death. I conceive that death may occur in one of two ways: either by destruction of the functions of the brain by stagnant and venalized blood, or by stagnation of the circulating fluid in the heart overpowering its action by engorgement, or extreme distention.

Treatment.—If the subject come under treatment before the advent of extreme vascular oppression and nervous collapse, a moderate general depletion, or the application of leeches behind the ears, will relieve the cerebral and thoracic organs overpowered by congestion, give time and place to the influence of cold applications to the head, and to the derivative effects of heat applied to the extremities, and to active purging. But to deplete with good effect requires care discrimination, aided by a calm judgment. It is a moment of terror to the lookers-on ; but the mind of the surgeon must be deliberate and firm. All the unqualified, exclusive, and absolute arguments against bloodletting in any instance of this most formidable disease (and they are very easy to adduce) are founded only on its ill-timed application, or misuse. To use so powerful a means justly requires all the mental qualities above-mentioned, and so does its application to remittent fever, dysentery, and hepatitis. The difference is mainly a question of time, and the use made of it. At the same time that bloodletting is being practised, diffusible stimuli, with ten to fifteen minim doses of laudanum, should be administered, with a view to rouse and support the nervous and vascular energies. The after-treatment should, in all essentials, be that which we would direct to conduce and to mature convalescence from the ardent fever of the hot season. When visceral complications arise, they are of course to be treated on general principles.

Campet urges attention to the habit and constitution of the patient, prescribing early and free depletion in such subjects only as are of a sanguine temperament, adding a cautious regard to the practical maxim, that bloodletting kills, if it do not cure the disease ; concluding with another maxim again, that for great ills there must be great remedies. He bled, vomited, and purged freely, at the very accession of the disease ; and his measures in the latter stages were prudently measured to induce convalescence. Dr. Dick " removed the patients under the shade of trees, bleeding them freely in time, and giving them water, which generally cured them ; but as the stomach and bowels were often overloaded with bilious and putrid matters, it was necessary to give them in the evening a small quantity of tartar emetic dissolved in saline mixture, which answered better than any other evacuant." He concludes by stating that though the sufferers seldom required any other medicines, they were a long time thereafter unfit for duty. Dr. Henderson's already-recorded fact is here worth repeating. Such men as could not reach the shelter of the camp by nine, a.m., "were seen to drop down and instantly expire; others less severely attacked, were saved by a timely and copious bleeding." Just so; the first-named were death-struck, but the cases which were of a curable nature obtained relief and safety in the "timely" abstraction of blood. When, again, in the practice of Drs. Henderson and Mouatt, "sinking of the vital powers, or kind of collapse, occurred, a grain of opium was given to produce reaction, after the occurrence of which they were largely bled; and with these precautions, although thirty were admitted into hospital after the first march, none died." The same observers state that bleeding, if practised largely at a later stage, was found by them "a remedy worse than the disease." Dr. Murray sums up his treatment as follows:—*Bloodletting, general and local; cold applications to the head, cathartics, clysters, antimonials, rest, quiet, counter-irritants, cordials, darkness, abstinence.* He urges that no personal restraint be used, that all articles of clothing capable of obstructing circulation be removed, and that the posture be such as to favour the return of blood from the head.

From the earliest notices by our Indian surgeons, and by M. Campet in French Guiana, of nearly a century ago, as well as from the recent observations of M. Guyon and other able surgeons of the French army in Algeria, it has been made sufficiently evident that our active measures of cure, to have a favourable prospect, must be practised as soon as possible after the soldier has fallen out of the ranks; and the great balance of testimony speaks to the fact, that when thus used, the proportional recoveries have been considerable, counting only such as were within reach of cure. But we must remember that minutes are here of vital import. It is to the disregard of this fact, and to the use of bloodletting especially after the time for it has passed away, that we must refer the differences of medical opinion on this head. The opening of the temporal artery, when practised at the proper time, is said to have proved very successful in the hands of the American practitioners, and I have seen this operation very efficacious in India in the febrile stage of reaction from sun-stroke, and when the brain was oppressed by congestion. Mr. Dempster's experience accords entirely with that of the American physicians. Mr. Scriven, of Bengal, an able officer, and no friend to bloodletting, says:—"Six leeches to the temples often give marked relief;" and in the case of a seaman, twelve leeches were applied by him on two separate occasions.

If the suitable abstraction of blood, cold applications to the head, a full dose of calomel with antimony, or Dover's powder, an active purgative, a free ventilation, cold drinks, darkness of the apartment, and rest, be employed early, and while the nervous and vascular systems retain sufficient tone, we shall, as in Dr. Henderson's practice, obtain a large amount of success. But if the same means be put in practice later, and when the vessels of the lungs and brain have lost their tonicity, they fail of relieving the oppressive congestion, and so far from making a favourable impression, they tend powerfully to the contrary result. This is an all-important consideration to mark; it is here as in remittent fever; the measures which, if applied early, may save life, will if misapplied, as surely destroy it.

But when the surgeon, on the most careful balance of all the circumstances of the case, sees that the constitution of the patient is unfavourable, or that the time for active measures has past, then means which would, in the first and earlier stage of the disease, have been but adjuvant, become the principal—indeed the sole means. Heat to the four extremities, sinapisms of the epigastric region, and cold affusion to the head and chest, must be perseveringly applied, brisk aloetic and aromatic purgatives being at the same time freely administered. The capillary circulation being stagnant like that of the great internal viscera, frictions all over the body—such as shampooing—have proved of great efficacy. By such means, persistently used, cases wearing a hopeless aspect will sometimes turn towards convalescence. For many years, both in the French and British armies, the course here described has been that generally pursued; and we surely have not now to learn that, when the patient is anæmic, or when the circulation has ceased, the heart being filled with coagula, the functions of the brain having ceased, we are not to bleed the sufferers; that we may not bleed dead men, in fact.

I am here anxious to state, that far indeed from underrating the value of cold affusion, there may be danger of its recommending itself, in the treatment of all cases, acute as well as passive, as a chief means of cure; and this, with many persons, on the score of the ease with which it can be applied: any one can do it, and it is quite as easy to rely upon it; but such are not here the questions.

Finally, a reference to the recorded histories of this disease leads to the conclusion that the means of cure have long been, and are, well known generally; and it is on the relative value of each remedy, its time and place of use, that I apprehend any real difference of opinion to exist. The treatment of heat-apoplexy is, indeed, as well understood as that of most other diseases; and one of the chief purposes of this essay has been to suggest the relative value of the several remedial means, and the order in which they should be applied. One thing is absolutely essential to the due estimate of the results of treatment—viz., that we confine our statistical records to curable cases—to cases possible of cure; for it is to the neglect of this necessary separation of the incurable from the curable instances that a serious statistical error has arisen; just as the neglect to determine the proper time for the application of active remedies has thrown difficulties in the way of a determinate cure.

A notice of coup-de-soleil would be wanting in interest which should not refer to Sir Charles Napier's most able and characteristic account of his personal seizure and treatment when serving in Sindh: "I had hardly written the above sentence ten days ago when I was tumbled over by the heat with apoplexy; forty-three others were struck, all Europeans, and all died within three hours except myself! I do not drink! that is the secret. The sun had no ally in the liquor amongst my brains. Unable to walk, I flung myself on a table, and luckily one of my staff came in. He called the doctors; two or three with me in a twinkling; wet towels rolled round my head; feet in hot water; bleeding, and two men rubbing me. I was so drowsy as to be angry that they would not let me sleep. Had they done so, it would have been hard to awake me."

Prevention.—Of all the means of prevention of heat-apoplexy, the avoidance of spirituous liquors and of excess in the use of animal diet must take the lead. In the language used by the great general, Sir Charles Napier, he gave expression to a physiological fact, the suggestion of his own acute perception. The sun is the primary cause; the spirit-ration and the abuse of ardent spirit constitute the chief accessories. I believe that with temperance in diet, avoidance of so much direct solar exposure as may be compatible with the nature of the service, attention to tent-covering and ventilation, and to head-dress and body-clothing, British soldiers may be made to march well under the hottest sun of India.

Sundry of the French surgeons in Algeria, and M. Scoutetten preeminent amongst them, urge the importance, and indeed the necessity, of wearing a neck-cover as a protection of peculiar efficacy against the sun's rays, declaring this article of dress to be as indispensable to the soldier who may have to serve in that country as the very head-covering; and in this they follow the instinctive habit of the natives of hot climates.

On the subject of the quality and arrangement of the soldier's dress when serving under great heats, there can be no difference or question. The head-dress should be light, of slowly-conducting materials, and constructed so as to command ventilation. Dr. Jeffrey's helmet gives protection by slow radiation, slow conduction, reflection, ventilation, and evaporation. The body-dress should be of cotton; and from head to foot everything should fit loosely, to allow the most perfect freedom of respiration and to the movements of the body, so as nowhere, but especially about the neck, to press on or interrupt the circulation of the superficial vessels. Everywhere throughout the world, whether east, west, north, or south, the army surgeons urge the use of the flannel roller to protect the abdomen; and a complete dress (shirt and drawers) of flannel, to wear on coming in from the march and whilst the uniform is being dried in the sun, is no less requisite.

Parades, formalities, the majestic English march, "Regulations," and appearances, must here be utterly and at once discarded; for it is a question of life and death. The open, disorderly-looking order of march, however slovenly it may seem to the lieutenant-colonel, must here be used, the close order being nothing short of stifling and sickening the men "by Regulation." While on the march, the face and hands should be frequently bathed; and on such halts, which should be ordered every hour, the men should be urged to refrain from drinking the impure waters so general in the hot season. It is hardly necessary to say that the ordinary march should be conducted slowly, and always during the night, when the service will admit of it.—*Lancet, Jan.* 8, *and* 15, 1859, *pp.* 28, 52.

32.—*Dental Neuralgia.*—Acetate of morphia 1½ grains, acetic acid 2 drops, and eau-de-Cologne, ʒij. M. Balloy states that a little of this mixture placed in the ear in cotton, on the ear of the same side as that in which the dental neuralgia prevails, is of remarkable efficacy. —*Med. Times and Gaz., Jan.* 8, 1859, *p.* 42.

33.—*On Inframammary Pain.* By Holmes Coote, Esq.—[On this interesting subject, which has hitherto been called neuralgia, Mr. Coote says:]

Doubtless, this pain is excited by more causes than one; and I cannot pretend to explain the exact condition during its persistence of the nerve-fibrils or of the vessels which surround them. But I would remark, that inframammary pain is one of the very earliest and commonest symptoms of incipient lateral curvature of the spine. I know it so frequently in connexion with this deformity, that I should almost insensibly investigate the state of the spine upon hearing the complaint of pain; and, finally, it has been recognised and described in this point of view since the days of Delpech, and for all I know, anterior even to him. He says (*Orthomorphie*, tom. ii, p. 10, 1828: "Another interesting remark, and which it is necessary to know, *à priori*, because the object which it concerns, can teach nothing by induction, is relative to a constant pain, somewhat vague in its seat, which takes place sometimes in the epigastric region. This pain has no known cause; its duration is usually constant; but its intensity is variable; its periods of calm and of exacerbation have nothing regular; there is no disturbance of the functions of the organs in the seat of pain; nothing quiets it; nothing relieves it. It is accompanied by slow, progressive, and inexplicable deterioration of the general health. It is evidently allied to something grave but quite clandestine . . . . In the winter of 1817, I was consulted by a young person, aged 11, of pale complexion and naturally slight frame, who for two years had been suffering from pains, often co-existent, in the epigastrium and left inframammary region. She had become very thin; her sleep was often disturbed by her suffering. The pain was never acute, but its constancy made it intolerable. The girl had lost her gaiety and become very depressed, but respiration was good, the functions of the heart free, and the stomach did not appear the source of the disorder."

In this case curvature of the spine was recognised, so slight that Delpech was obliged to mark the apices of the spine as processes with ink, and then to let fall a delicate plumb-line in order to demonstrate the deviation.

The greater frequency of spinal curvature to one side may explain in some measure the obedience of inframammary pain to a similar law: its greater frequency in the dorsal region may account for the occurrence of the pain in the superior and not in the inferior part of the abdominal walls; and if there be any connection between the two, we may understand why it does not occur in other parts of the muscular system.—*British Med. Journal, Dec.* 4, 1858, *p.* 1017.

34.—ON MYALGIA, OR MUSCULAR PAIN: WITH CASES.

By Dr. Thomas Inman, Liverpool.

[The present article may be considered supplementary to that at page 19 of our last volume. Dr. Inman's recent observations on the subject gives him but "a greater idea of its extent and bearing." He says:]

Before recording some fresh cases illustrative of important points, let me recapitulate the chief phenomena of myalgic or muscular pains. They have their seat in the fleshy parts of muscles, in their tendinous prolongations, or in the fibrous aponeuroses. The continuous stretching of any white fibrous tissue, from whatever cause arising, will produce a similar pain. Fibrous tissue is more readily stretched in the weak than in the strong; and the process is attended with greater pain. The pain is described as hot and aching, and is commonly attended with cutaneous soreness, and tenderness on slight pressure. Whenever the pain is due to stretching, it is relieved, though not absolutely cured, by relaxation. The pain is independent entirely of the course of nerves, &c., and is not materially influenced by those constitutional remedies which are useful in neuralgia. I have already recorded instances in which myalgia has been mistaken for hysteria, neuralgia, pleurisy, puerperal peritonitis, disease of the liver, kidney, bladder, or uterus; and scarcely a week passes without my being able to increase this list. The key to the investigations into these complaints is to consider that, as double work in a man of ordinary strength will produce myalgia, so ordinary work will produce a similar effect in those whose muscles are diminished in power to half their normal strength. The presence of muscular pain, therefore, involves either excess of work or want of power: where neither of these causes are in operation, others must be sought.

In giving the following histories, I shall occasionally adopt the conversational style, with a view to show how readily a diagnosis may be formed.

Case 1. *General Myalgia.*—Mr. H., aged 44, a man of almost herculean proportions, consulted me for pains in the breast, side, back, &c., for "swimming in the head", and liver-disease. As he spoke, he passed his hand in succession over all the large muscles of the trunk, and remarked that the pains never lasted beyond ten minutes in any one place, and that sometimes they were attended with swelling, &c. After myself pointing to the various muscular insertions, &c., and ascertaining those to be the principal seats of pain, the following colloquy ensued:—"Of what business are you?" "In the beer trade." "What is the routine of your day's work?" "Going out for orders, collecting money, &c." "Then you've no hard bodily work?" "None whatever." As it was now clear that the pains were not caused by extra exertion, it was evident that there must be some cause for excessive debility. "Do you drink heavily?" "No; a few glasses of ale a day, and sometimes brandy and water, when the pain is very bad." "Is your appetite good?" "I'll eat as much as the doctors will let me; but they say I am not to eat much, for fear of apoplexy. I'm often giddy when I turn round or stoop; and sometimes I've fallen down. My eyes, too, are apt to get very bloodshot." "But you eat enough to live on comfortably?" "Yes." "Have you lost any blood by cupping, bleeding, or piles?" "No." "Are you much purged?" "Aye, that I am." "How much?" "Often six times before breakfast, and sometimes twenty times a day!" "What's all that for?" "Drs. So-and-so and So-and-so order me medicines for liver-disease, and to keep off apoplexy." "I suppose you feel very weak." "Aye, that I do; I was so done up, I could scarcely get up your door-steps; sometimes I have fairly to crawl on all fours up stairs to bed!"

In this case the diagnosis was myalgic pains in the various muscles of the trunk, not arising from over-exertion, but from deficient power to do his ordinary work. The debility was due to the purging; the swimming head and bloodshot eyes had a similar origin. The pain in the side had not an hepatic origin.

The indications of treatment were sufficiently plain; and steel, cod oil, generous diet, abstinence from aperients, and a daily rest, cured the man completely in ten days of all his symptoms.

Case 2. Mr. J., aged 66, who had all his life been an extraordinarily healthy and powerful man, began a short time ago to suffer from complete anorexia and occasional vomiting. He continued, however, to go down to business as usual. This continued for about six weeks, during which period he became extremely feeble. He now began to suffer from constipation, and allowed the bowels to remain unopened for three days. They were not relieved without great abdominal straining; and on the same day, he had an unusually protracted fit of vomiting. The day following, the pain in the abdomen was so severe, that he was under the impression that he was threatened with gout in the stomach. The vomiting continued; and the pain, at first diffused, became settled in two localities, and was so intense, as almost to make him faint when he sneezed or coughed. At this period, I was summoned to attend him. I found that there was exquisite pain and tenderness on pressure on each side of the pubis at the insertion of Poupart's ligament and the linea semilunaris. The pain shot down to the scrotum; and the testicles were forcibly drawn up during its continuance. There was no hernia, nor sign of organic disease. I explained to the patient the real nature of the pain, and its dependence on a strain upon the tendons greater than they were able to bear. I recommended the local use of a solution of atropia, and complete rest in the recumbent posture, with champagne to relieve the sickness. These means were successful; and in two days the patient again contrived to get to business, though the soreness continued for a week. In this instance, the tenderness was confined to as small a spot as it is in pure inframammary pain.

Case 3. Mary C., aged 19, a slight made girl, of consumptive family, came into the Liverpool Northern Hospital, complaining of severe inframammary pain. On requesting her to place her finger on the part, she immediately indicated a spot apparently corresponding to the upper insertion of the right linea semilunaris. "But you have pain in other places besides that?" I inquired, passing my hand over the origins and insertions of the trapezius, pectoral, external oblique, and the extremities of the rectus abdominis. She had or had had pain in every spot I touched. "Now, of what business are you?" "A milliner." "What are your hours?" "From nine in the morning to nine at night." "Do you work on Sunday?" "No!" "How are you on Monday?" "Always better?" "The pain goes when you lie down?" "Yes, always; but *it comes on again whenever I turn round in bed.*" "You have not had the pain long?" "Two months." "But you've been a milliner for longer than that?" "Yes." "And your hours have been always the same?" "Yes." It was clear, therefore, that some cause for debility was to be sought. A few inquiries elicited that for the last three or four months she had been suffering excessively from leucorrhœa. The catamenial function was regular. Rest in bed, tonics, and astringent injections, set her up again in about three weeks.

A propos of this case, I cannot help adverting to a paper read by Dr. C. Coote, at the Harveian Society of London, and reported in the 'British Medical Journal,' June 19th, 1858, in which an attempt is made to show that the pain in question is a pure neuralgia. It is in medical science a matter for regret that there should be so strong a tendency to put down a mysterious pain to some equally mysterious operations of the nervous system. and to pass by perfectly adequate explanations, because they are so simple. Look, for example, at the following explanations by Dr. Coote :—" True inframammary pain is a peripheral neuralgia, having its (probable) origin in malnutrition of the nerves of the part. This, again, results from disordered circulation, affecting the left inframammary region especially, by reason of its peculiar anatomical relations. The immediate cause of this vascular derangement consists in disordered innervation of the smaller arteries of the whole body, occasioning irregular spasms and dilatations of their walls—a condition which, while in the inframammary region it occasions neuralgia, in other parts gives rise to chills and flushes, to palpitation, to excessive or defective secretion, to congestions, hemorrhages, and fluxes ; while an analogous state of the motor nerves of the alimentary canal produces obstinate constipation." What a " darkening of counsel with words without knowledge" is here ! How much more simple is it to say that the pain depends upon a prolonged strain upon the tendinous or fibrous portions of the abdominal parietes, which is greater in some parts than in others, according to the position commonly adopted by the patient ; that it is relieved by every position which relaxes the strain, and *vice versâ ;* that it is attended with similar pains elsewhere ; and further, that the constipation, flushes, cramps, palpitation, &c., which accompany inframammary pain, are nothing more than evidences of general debility affecting other organs of the body as well as the muscular system.

The main question between neuralgia and myalgia must ever be (until at least the new word becomes domesticated in medicine), Can stretching of the white fibrous tissue produce an amount of pain comparable to that of genuine neuralgia ? In other words, Is it possible for severe suffering to have other than a purely nervous origin ? Any one who wishes to answer this question for himself should straighten the lower extremities, and then attempt to touch the ground with the tips of the fingers ; noting at the time the sensations in the popliteal region. If he wish to observe a similar pain in woman, let him note the intense agony complained of in the sacro-sciatic region during the time the head is passing through the pelvis during parturition. The following case will give another illustration of the same fact.

Case 4. Mary J., aged 19, of consumptive parentage, came into the Liverpool Northern Hospital with all the symptoms of caries of the spine. The disease was in its early stage, however ; and there was no gibbosity. There was no local pain, nor tenderness on pressure. As the case proceeded, the patient complained of gradually increasing pain, which was at last sufficiently severe to prevent her sleeping without opiates. The part affected was now gibbous, and the pain was entirely referred to the spinous processes ; and the suffering was due solely to the stretching of the interspinous and other ligaments. It was relieved by the local use of belladonna and opiates, but nothing removed it entirely. The patient is still under observation.

The pain from varicose veins is equally due to the unusual stretching of their white fibrous tissue.

The following case shows another phase of myalgia of equal interest with the preceding.

Case 5. Jane C., aged 20, was admitted into the Northern Hospital with a painful tumour in the side. She was tall, slim, and delicate-looking; and complained of pain referred to the right inframammary region. On making an examination of the abdomen, a swelling with a well defined margin was recognisable, extending from the ribs to the crest of the ilium on the right side; but it was clear that this was due entirely to a permanently cramped condition of the external oblique. She had pain at the insertions and origins of all the abdominal and thoracic muscles and in the gluteal region also. A few questions elicited that she was the servant of a washerwoman, and that she was occupied at least six hours daily in working the "dolly;" that she had been able to do her business very well until a short time back, when she had been pulled down by leucorrhœa, menorrhagia, loss of appetite, and indigestion. Tonics, rest, and anodyne frictions were prescribed; and the woman discharged herself as cured in ten days. Two years afterwards she came in once again under the same circumstances; and was again discharged cured.

Notwithstanding the foregoing explanation of this class of pains, there is still a strong disposition on the part of practitioners to regard them as hysterical, and to associate them in some manner or other with the uterus, or the excitable disposition so constantly attributed to females. It is advisable, therefore, to show that they are by no means confined to the gentler sex, and are to a great degree independent of the nerves.

Case 6. Francisco B., aged 35, an Italian Swiss, was admitted into the Liverpool Northern Hospital with chronic dysentery. We ascertained that he had been in Australia at the Gold Diggings; that he had been taken with his present disease twelve months prior to his admission; and that he had never left his bed since. He was carried on board ship, and thence again to the hospital. On admission, he was excessively emaciated and weak. At the end of six weeks, he began to recover; and in about a month more the dysentery was quite cured, and he was able to sit up in bed. Up to this time, he did not complain of pain; but as soon as he was sufficiently well to dress himself, he complained of severe suffering referred to the abdominal walls, accompanied by tenderness on pressure. This continued for many hours every day, and always drove him to bed. Nevertheless, he gained flesh and strength daily. Anodyne frictions relieved him to a small extent; but some weeks elapsed ere he was able to sit up and walk about all day without pain. There could be no pretence here that the pain was neuralgic or hysterical; it was clearly due to the unusual strain thrown upon muscles that had long been all but inert; and it did not differ in the smallest degree from that so common amongst women.

Case 7. At the same time another patient in the same ward complained of abdominal pain, which he referred chiefly to the hypochondriac regions and the epigastrium. In describing it, the man placed both hands on the spot corresponding to the inframammary region in the female. The case had been one of simple fever, of course implying great debility; and the man got up too soon, and remained up too long. He was instructed accordingly, and soon ceased to complain. Two days before he left, however, he stated that the suffering exceeded anything he had previously had. But the nurse of the ward, who is now very familiar with the nature of these pains, at once explained this, by saying, that he had been out of doors, and that he told them he had been having a "hard run"!

The next is, if possible, a more instructive case; inasmuch as it shows how very trifling an amount of exertion is enough to produce these pains in weakly subjects.

Case 8. James C., aged 64, was admitted into the Hospital for simple rheumatism, under the care of my colleague. The rheumatic pains speedily gave way, but he remained in the house to regain his strength. In the absence of my colleague, he came under my notice. When I saw him at first, he was in bed, had an unhealthy aspect, and total anorexia. I could detect no organic disease. By and by, he began to sit up, and to complain of constant abdominal pain, referring it chiefly to the hypochondriac region. He never had the pain when lying down; it was, however, severe, if he tried to turn round in bed. It was clearly myalgic; and was treated accordingly; nothing, however, did him any good until under the influence of steel and cod oil, the appetite improved, and his natural strength augmented.

I find that these pains are extremely frequent in consumptive cases, and in those who, though not actually phthisical at the time, have inherited a consumptive diathesis. In them the right shoulder is the most common seat of pain; the suffering being sometimes referred to the insertion of the trapezius muscle, and sometimes to the origin of the pectoral, according to the uses to which the arm has been put.

It is a very common thing to find young and delicate mothers, who have much to do in carrying their infants, suffering from this affection—especially while they are suckling; for at that period they are doing a more than common amount of work, and experiencing a steady reduction of power to do it. I have had many instances of this under my notice lately, of which the following is a good example.

Case 9. Mrs. T., aged 33, of delicate complexion, but of healthy family, mother of five children in eight years, had been confined about two months, when she began to suffer severely from pain under the right clavicle and in the right groin. As her appearance was eminently calculated to give rise to a suspicion of phthisis, the former was considered as an indication of that complaint, while the latter was attributed to inflammation of the ovary. On examining her, I could not detect any physical signs of disease of the lungs; but her appearance, and the description she gave of herself, indicated an extreme amount of debility. She had even found that one month's nursing, during which she had been for the most part on the sofa, was too much for her; and after this, when she had begun to fulfil her ordinary household duties, she had found herself quite "done up." As she could afford little assistance, she had the care of the baby almost exclusively, and nursed it upon her right arm. The pain was not severe in the morning generally—the parts were only sore; but towards evening she was unable to continue her nursing without great suffering. The pain in the groin was always worst at night, and was reproduced by turning in bed and lying with the body quite horizontal. Sometimes she had a "lump" in the abdominal walls. In this case the diagnosis was very easy; it was clear that the pectorals, deltoid, and trapezius were overworked in nursing the baby; that the external oblique and other muscles of the right side of the abdomen were equally tasked, the effect of the fatigue being chiefly felt by Poupart's ligament. The plan of treatment was equally clear; less nursing, full diet, tonic medicine, and a greater amount of rest.

I have, in previous communications, adverted to the fact that it is not common to find that both insertions of the muscles suffer equally. That it is really so, farther experience proves, though it affords no adequate explanation of the reason why. Thus, from excessive cough, one patient refers the pain to the origin, another to the insertion of the pectoralis major and minor; one sempstress refers all her pain to the occipital, another to the spinal, another to the scapulo-clavicular attachment of the trapezius. One refers her pain to the inframammary, another to the inguinal, and another to the semilunar attachment of the external oblique. One refers her suffering chiefly, if not entirely, to the pubic, and another to the epigastric attachment of the rectus; while others refer their complaints equally to all these spots simultaneously or in succession. Another curious fact, of which I have more recently convinced myself, is, that the myalgic pain produced by prolonged stretching of muscular or tendinous fibres will occasionally pass away without there being the smallest relaxation of the tension. We are not in a position to explain this, nor can we expect to do so until we have some satisfactory information upon what muscular "stiffness" and soreness depends. Experience tells us that a horse will often be lame and halting until he "warms to his work," and that many a pedestrian, who is sore and stiff at starting, becomes comfortable at the end of his first hour. Reason, therefore, would suggest that a good deal of the suffering arising from prolonged stretching might arise from deficiency of circulation in the part—a conclusion strengthened by the facts that stretching a part must diminish the calibre of all its longitudinal tubes—and that warmth will relieve myalgia quite as effectually as exercise. But until we have more definite grounds to go upon, it will be judicious to avoid theoretical explanations, and I therefore content myself with giving the foregoing for as much as they are worth.

[We think Dr. Inman carries his views rather too far. He seems wishful to explain all these (what we have hitherto considered to be) neuralgic pains as muscular. Many of them may be so, but is the pain muscular when it attacks the course of the frontal or temporal nerve—the intercostal nerves just under the particular rib affected—the different parts of the face or teeth—the surface of the sternum—the various parts of the scalp—the covering of joints in hysterical women, who undergo no exertion whatever—the peculiar aching and tenderness of the spine when no exertion or strain whatever will account for the pain, but which, on the other hand, is sometimes relieved by proper exercise? Though we cannot agree with all that Dr. Inman says, his opinions are entitled to great attention and examination. The remedies which he has found serviceable in his cases would also be serviceable in nervous and hysterical pains attacking the fibrous structure of nerves. At the same time we believe that many of these pains are in the muscles, not so generally from strain or overwork of them, but from their nervous structure, or perhaps from the fibrous aponeurotic coat. We may have neuralgia of a muscle as well as of a nerve itself; we may have gout of the fibrous coverings of both nerves and muscles; we may have neuralgia of bones and joints also—all of them with a general similarity. It is more than probable that many of these pains may be nothing more than gout, which we know is fond of attacking fibrous coverings, not only of joints, but of muscles and nerves, giving rise to various degrees of pain according to the quantity of nervous matter included in this kind of *packing-case.*]—*British Medical Journal, Oct.* 16, 1859, *p.* 866.

35.—ON HYSTERICAL MUSCULAR HYPERÆSTHESIA.

By M. Briquet.

Under the term hyperæsthesia, or increased sensibility, may be comprised various conditions formerly designated as pains, neuroses, neuralgias, or nervous phenomena. Writers upon hysteria have passed very lightly over the condition, although it is so constant an accompaniment of the disease, that there is not a woman subject to hysteria that does not manifest it in one or more parts. In the present article M. Briquet confines himself to the consideration of *hyperæsthesia as it affects the muscles*, this being its form which has excited least attention. It is, however, of very common occurrence, and the ignorance that has prevailed concerning it has given rise to numerous and disastrous errors in diagnosis. It may excite surprise to learn that this hyperæsthesia not only constitutes a means of recognising the nature of hysteria, but a positive criterion in the decision in doubtful cases.

The muscular system must, indeed, be naturally expected to play a great part in hysteria, for the voluntary muscles are a common theatre for its manifestation, whether in the form of convulsive paroxysms, paralysis or debility, anæsthesia, or hyperæsthesia. The pains felt in the walls of the splanchnic cavities are of such common occurrence in hysteria that no observers have omitted to notice them, although failing to recognise their true seat. They have been usually designated "nervous pains" without farther explanation; and even the few authors who have recognised them as muscular have failed to appreciate the part that hyperæsthesia of muscles plays in hysteria. Yet from among 400 hysterical women examined on this point there were not more than 20 who did not exhibit such muscular pain. This hyperæsthesia is so easily recognised by the following signs that it is surprising it has not been sooner appreciated:—1. The pain is always located in places occupied by the fleshy portions of muscles. 2. As the superficial muscles are those usually affected, it is felt immediately beneath the skin. 3. Slight pressure or scratching with the end of the finger over the muscle induces or aggravates the pain. 4. The pain thus induced is very severe, causing cries or contortions on the part of the patient, or even a hysterical paroxysm. 5. Movement, and especially distension of the fibres of these muscles, produces or exasperates the pain, while rest abates or relieves it. 6. Feeble electrical currents, which scarcely produce a disagreeable sensation when traversing the length of a muscle in a normal condition, induce an amount of pain difficult to bear while traversing the hyperæsthetic muscle, and become quite intolerable when they are rendered a little stronger. 7. Under the influence of Faradisation non-inflammatory muscular pains, such as rheumatoid, those of lead colic, and especially those arising from hyperæsthesia of muscles, are rapidly dispelled. This hyperæsthesia, which may be termed *hysterical myoalgia*, does not affect all muscles alike, the superficial muscles, and especially those of the trunk, being most liable to it. In the trunk itself it has its places of preference, observed with so much constancy and regularity as to serve for one of the signs of hysteria. The following are its various seats.

1. *Cephalalgia.*—When the hyperæsthesia affects the muscles of the head it constitutes what has been termed cephalalgia. So common is it in hysterical patients, that among 356 of these it prevailed habitually, or very frequently, in 300, affecting especially the frontal and temporal regions of the head, and in at least nine-tenths of the cases having its seat in the fleshy portions of the muscles. It is frequently pulsatile, and at other times lancinating, continuing even during rest in bed, which distinguishes it from the chlorotic headache, which is hardly felt except during motion.

2. *Epigastralgia.*—Hyperæsthesia of the muscles of the epigastric region plays a far more important part than has been suspected. It frequently occurs, having been noted in 317 out of 358 hysterical subjects. In 130 of these there was no accompanying derangement of the digestive functions, while in 187 such disturbance existed. In answer to the question, why there should be so constantly pain in parts which seem to have no relation to the moral emotions of the patient, it may be observed:—(1.) Epigastralgia may be met with in the childhood of girls who are subject to ill-treatment, or who have a hereditary predisposition to hysteria, and in such it becomes associated with disorder of the digestive organs, and a disposition to migraine. (2.) In others it appears either at the period of the establishment of the menses, or later, during difficult menstruation. (3.) In a certain number of cases it arises amid the disturbances produced by chlorosis. (4.) In a few cases it arises during the evolution of the hysteria, without the aid of any special cause. The above-named circumstances explain the origin of one half the cases of epigastralgia, and the other half is due to the two following order of causes. (5.) The hysterical paroxysms. These are usually preceded and accompanied by a feeling of compression, distension, or tearing of the epigastric region; and for twenty-four hours after the fit is over the patient often complains of epigastric pains. In proportion to the repetition of the paroxysms does the epigastralgia become established. (6.) Depressing moral emotions. These when at all intense produce painful constriction of the epigastrium. To sum up: this hyperæsthesia is due to two orders of physiological causes, the direct influence of the nervous centres on the muscles, and the reaction of the disordered stomach on the same muscles.

Epigastralgia especially extends towards the left side, mounting up as high as the middle of the sternum, and rarely descending below the umbilicus. The pain is severe and continuous, and exasperated by emotion, the hysterical fit, progression, or compression. The attitude is constrained, and sometimes the respiration is influenced, but the process of digestion does not aggravate the suffering. The ignorance that prevails as to the seat of epigastralgia has led to most serious errors in medical practice—these muscular pains having sometimes been thought to be localised in the solar plexus, and at others in the stomach; and, according to the doctrine of the day, have been treated as neuroses, gastralgia, or gastritis. Now, if we bear in mind that in somewhat less than half of the persons suffering from pains in the epigastrium the pain is only muscular, it is evident that that number has been treated for a gastralgia that had no existence. Moreover, in patients suffering simultaneously from epigastralgia and derangement of the digestive functions, the former may exist independently of the latter, and be easily relieved by means addressed specially to it; and yet the stomach has been needlessly tormented by treatment that should have been directed to the muscles. It is not meant to be said that the stomach itself may not be the seat of severe suffering, such as pyrosis, tearing pain, or distension, from indigestion; but such pains are intermittent and temporary, and should not be confounded with the continuous pains of the epigastric muscles. The writers on gastralgia never allude to this muscular pain; and as amidst the author's 358 cases of hysteria, there were not above 10 in which gastralgia existed unaccompanied with epigastralgia, it is easy to see how often the stomach has been rendered responsible for ills that did not attach to it. Hysterical epigastralgia may continue as long as the hysteria itself, and persist to a very advanced age. When it prevails with intensity, the constant pain wears out the patient, and renders all movement insupportable. She becomes melancholic and emaciated, and presents all the appearance of premature old age. Fortunately, nothing is easier than the relief of the affection when appropriate means are resorted to.

3. *Rachialgia.*—Hyperæsthesia affecting the muscles of the back has been long recognised; and so common is it indeed in hysterical patients, that M. Briquet found it absent in only 5 out of 311 cases. According to the details he gives, it is found 5½ times more frequently at the lower than at the upper part of the back, and is 5 times more common on the left than on the right side of the spinal column. It occupies in general a space corresponding to about 4 or 6 vertebræ. It usually appears subsequently to the epigastralgia, and may exist in various degrees, from a mere uneasiness, scarcely perceptible, unless pressure be made at the side of the spine, to the severest suffering, and consequent disturbance of important functions. When intense it becomes very fixed, and is one of the symptoms of hysteria most difficult to remove, the pain recurring from the slightest cause. Its diagnosis is easy by means of pressure made on the muscles at the side of the spine, and by observing its usual connexion with epigastralgia and other symptoms of hysteria. In spite of this, however, its presence has frequently given rise to the most serious errors, and a frequent one among these has been the mistaking it for an early sign of phthisis. What authors have described as tabes dorsalis has often been but this rachialgia reacting on the viscera and vitally affecting nutrition. But the most serious of all these errors is the mistaking it for disease of the spine, an error M. Briquet believes to be even more common than Sir B. Brodie has represented it to be.

4. *Pleuralgia.*—Pains at the side of the thorax are so common that they have been noticed by almost all observers, but they have always been considered as neuralgic. In hysteria they are very common, having been found by M. Briquet in 223 of 300 patients in whom they were sought for. The seat is rather fixed, extending usually as a semicircle corresponding to the 5th, 6th, 7th, or even the 8th ribs, sometimes following their direction, and at others being still more oblique. It is 6 or 7 times more frequent on the left side; and M. Briquet found it bi-lateral in only 19 of his cases. It usually comes

on subsequently to the hyperæsthesiæ that have been mentioned, forming but an extension of them. Hysterical pleuralgia can only be confounded with pleurodynia, or the pain of pleurisy; and it suffices to be aware of the possibility of the former and the usual co-existence episgastralgia and rachialgia to prevent any error. It is more easily confounded with intercostal neuralgia, by which name many cases of hysterical pleuralgia have been erroneously indicated. The distinction is established between these as follows: (1.) Hysterical hyperæsthesia does not follow the direction of the nerves and their branches, and invariably is found at the 5th, 6th, and 7th ribs, while the accompanying rachialgia and epigastralgia are situated above the points they would be observed at, if dependent upon neuralgia. (2.) The pain bears no resemblance to that of neuralgia, being excited at any point that is compressed, without radiating along the course of the nervous tracts. (3.) Neuralgia setting out either from its point of origin or termination, soon extends to all the divisions of the affected nerve. Hysterical pleuralgia only shows itself after epigastralgia, and then rachialgia, have already long existed. Pleuralgia usually constitutes only a more or less considerable inconvenience, and however long it may persist is at last dissipated without having induced phlegmasia of the contents of the thorax.

5. *Cœlialgia.*—The hyperæsthesia is so termed when it has its seat in the walls of the abdomen. The pains produced have long been known to authors, but have usually been attributed to lesions of the sympathetic system. The author met with it in 196 of 400 cases of hysteria. In 42 it affected both sides, in 76 the left side alone, and in 34 the right side. The pain usually engages a considerable portion of the muscles affected, and is continuous while in the erect posture, being much increased by movement and pressure, and relieved by lying down. In many instances this affection has been mistaken for painful affections of the ovary, and it is such mistake that has given rise to the supposition that ovaritis is of more frequent occurrence on the left than on the right side. The superficial character of the pain ought to prevent this error being committed; and if we first relieve the mere muscular pain, we can then press over the ovary without inconvenience. The duration of this hyperæsthesia is very variable, the amount of exertion or repose taken by the patient, and the condition of the genital organs, much influencing this. The patients are often much distressed by the pain, fearing it to be indicative of uterine disease.

6. *Thoracalgia.*—Among the 400 cases only 27 complained of pain at the anterior part of the thorax. In 12 of these it occupied only the left, and in 2 the right side; while in 13 all the anterior portion of the chest was affected. This form of hyperæsthesia is usually one of the last that appears; and its rarity is probably due to the slight part which the pectoral muscles (wherein it is seated) take in the expression of depressing emotions. It is not very persistent, and

rarely disturbs respiration ; but gives cause to much anxiety from the patients' fearing that they are the subjects of disease of the heart. Its independence of neuralgia may be judged of by the fact, that of 150 hysterical patients with rachialgia at the level of the first six dorsal vertebræ, only 27 complained of pain at the anterior part of the thorax.

7. *Melyalgia* (from Μελος, a limb) is the term applied to the hyperæsthesia of the superficial, and perhaps the deep-seated muscles of the extremities. The existence of such pain in hysterical women has only been noticed by authors in a vague manner. Among the 400 cases only 58 examples occurred, both upper and lower extremities being affected in 13 of these, the upper alone in 21, and the lower alone in 24. It varies in degree from a mere disagreeable sensation to severe suffering, destroying all repose, and giving rise to fever. In spite of the most unfavourable appearances, however, it disappears sooner or later, either spontaneously or under the influence of treatment. It cannot often be confounded with neuralgia, seeing that in two-thirds of the cases the locality of the pains does not correspond with that of the origins of the nerves distributed to the muscles affected ; while from the pains arising from affections of the nervous centres it may be distinguished by its aggravation through pressure. The distinction from rheumatic myosalgia is more difficult. It must be drawn from the nature of the pain and the concomitant circumstances. The pain in hyperæsthesia is usually excessively intense, the slightest contact causing very severe suffering, while rheumatic pain is much less increased by pressure, and this requires to be firmer. The hysterical pain is manifested in women who have already presented other symptoms of hysteria, and almost always coincides with other myosalgias. The emotions exert great influence upon it. Rheumatic pain usually appears in women who have already suffered from muscular rheumatism, and is less exasperated under the influence of emotion. The difficulty of the diagnosis would be increased if the patient were both hysterical and rheumatic ; but then the inefficiency of the means which usually succeed in the hysterical myosalgia, would suffice to determine the rheumatic character of the affection.

Two points still remain in respect to melyalgia. (1.) Does it arise from inflammatory action, or from mere perversion of sensibility? The question is of importance, inasmuch as hysterical hyperæsthesia also affects the muscles of the splanchnic viscera, giving rise to accidents, the nature of which has been the subject of dispute, and which may be more easily determined by observations of muscles more superficially placed. There is none of the tension, pulsation, or heat observed in inflammatory pain, and this hysterical pain may reach an incomparable intensity. It is sudden in its appearance and disappearance, obstinately tenacious in some cases, while in others it is instability itself; and it is under the direct and immediate influence of moral emotion. It is no wise influenced by antiphlogistic remedies, only yields capriciously to narcotics, and can usually only be relieved by special means that have no effect upon inflammation. (2.) Is this pain a neuralgia? This at first is a natural supposition, but it is unfounded. True neuralgias, comporting themselves exactly as do the pains of nervous trunks, are, in fact, very rare in hysteria: and besides, numerous other points distinguishing these from myosalgias, it is to be observed that pain is felt at the extremities of the nervous trunk; but not in the intermediate portion, while in hyperæsthesia of a muscle the pain is felt along the entire course of the part affected. In hysteria pain is only felt at the part compressed, while in neuralgia it is induced by pressure on certain points, and then irradiates along the course of the nerve affected. But the best test is the effect of treatment, for while the hysterical hyperæsthesia is easily removable, none can be more obstinate and tenacious than the neuralgic.

Hysterical myosalgia, in some of the various forms that have been noticed, is one of the most marked symptoms of hysteria, and as it is very rarely absent it may itself be set down as a characteristic of the disease. Whenever we observe very acute pain induced by simple pressure of the finger in a part of the body exhibiting no traces of inflammation, we may from this sign alone diagnose the presence of hysteria with certainty. Whenever we are in doubt in ill-determined cases, we have only to gently rub with the end of the finger the upper end of the recti muscles to become convinced. Observation has proved that it is rare not to find hysterical hyperæsthesia, either at the epigastric region, high up on the back, or low down on the left side, and, in a very great majority of cases, in all three situations at once; and every woman presenting such combination may most positively be declared to be hysterical.

Treatment.—The means which have been employed for the local treatment of hysterical myosalgia may be grouped into four classes,—antiphlogistics, antispasmodics, anodynes, and revulsives. From time immemorial, topical emollients, cataplasms, liniments, &c., have been had recourse to; but M. Briquet, after a persevering employment of this class of means, comes to the conclusion that they are of no use whatever, any benefit that has seemed to accrue really depending upon the temperature at which they have been applied. The pain in this myosalgia is sometimes so fleeting that its disappearance in certain cases cannot be regarded as resulting from the means employed. Leeching, cupping or dry-cupping, are means that possess considerable efficacy, though far more as revulsives than as depletants. Thus, cupping is more useful than leeching, and the author has often had the glasses removed immediately after scarification, so as to secure the revulsive without the depletory effect. In fact, the loss of blood itself does not relieve the pain, while it induces debility, and increases the predominance of the nervous condition. A paroxysm of hysteria has not unfrequently closely followed an application of leeches. In former times, *antispasmodics* were regarded almost as specifics, and innumerable formulæ have been handed down with the recommendation of infallibility. M. Briquet has tried these various applications repeatedly, and has never observed any effect result unless irritation of the skin has been produced, or when the odorous emanations which have escaped from them have produced some modifications in the nervous system by becoming inhaled. *Narcotics* are not of much more use, a certain amount of amelioration being all that is procured. They require to be varied, and are but little to be relied on. Ice and cold water, which produce so much effect in dermatalgia, are somewhat less powerful in their agency when the pain is deeper seated. They may be advantageously employed when the pain is superficially placed, as on the head, and when the irritability of the patient forbids the employment of stimuli, or when these have failed.

The truly heroic remedies in muscular hyperæsthesia are *stimulants.* These may be thus enumerated:—1. Very hot cataplasms. 2. Dry heat, applied by cloths as hot as can be borne. 3. Chloroform and acetic ether, applied either together or separately. These act much more as irritants than as narcotics, and have the advantage of being able to be applied over large surfaces for long periods. 4. Sinapisms. The effect of these is still more powerful, and applied for twelve or fifteen minutes in the same place, two or three times a day, they very frequently relieve the pain. 5. Frictions with tincture of iodine or croton oil, repeated twice a day, have the advantage over sinapisms that they can be applied over very large surfaces. 6. Blisters. These have more power than the preceding stimuli, and the pains of myosalgia will scarcely resist their influence. 7. But the means *par excellence* is the Faradisation of the skin as performed by M. Duchenne. By his apparatus the electrical current is limited to the skin, its passage being accompanied by a series of sparks corresponding to the zinc pole. The pain these sparks induce is so severe as not to be bearable beyond a very few minutes. The hyperæsthesia is usually at once dissipated, and when this is the case, even firm pressure, or movements of various kinds, fail to induce any pain. Not infrequently a single application suffices, but sometimes the pains return at the end of an hour, but more commonly after five or six hours. If they have not returned by this last period, we may be certain that the cure is definitive. When they do return, the application must be repeated, they becoming feebler after each. If, however, after two or three *séances*, success has not attended them, the application must be renounced. The conditions for success of Faradisation are the recent date, the diffusion, superficial seat, and moderate intensity of the pain. Still, as these are cases in which, though the pain has been of old date, success has taken place, it may almost always be tried with some chance of benefit. As a general rule, hysterical women bear Faradisation with far more courage than men: but some of them are so susceptible that its employment may even induce paroxysms of hysteria. In such cases chloroform must be previously inhaled, as it should be also in those cases in which from the intensity and extent of the myosalgia the patient may not be expected to be able to bear the Faradisation during the time necessary for its relief. The chloroform in no wise impedes the revulsive action of the Faradisation. Still Faradisation is a means we should not have recourse to until the others have failed, or when the pain is so slight that a current of small intensity will suffice for its dissipation. During the treatment of this affection, the repose of the hyperæsthetic muscles is of prime necessity, and in some cases has sufficed alone for a cure. In ignorance of the nature of the affection, and when the pains have been believed to be located in the splanchnic viscera, exercises of various kinds have been recommended. Absolute repose is essential, and a few days of such sometimes suffices to relieve pains that have resisted various energetic remedies.

It is to be understood that the local treatment of these myosalgias is but the complement of the general treatment which is the basis of management of cases of hysteria.—*Union Medicalé.—Med. Times and Gazette, Nov* 27, 1858, *p.* 558.

DISEASES OF THE ORGANS OF CIRCULATION.

36.—ON THE TREATMENT OF PURPURA HÆMORRHAGICA BY LARCH BARK.

By Dr. Samuel L. Hardy, Physician to the Hospital for Diseases of Children, &c., Dublin.

[During August and September, last year, purpura prevailed extensively, and "opportunity was afforded of testing the efficacy of larch bark." In one case, which we select as the most striking, admitted September 6th, there was extreme debility, feeble pulse, pale and dejected countenance; the liquor pernitratis ferri, with good nourishing diet, were ordered, yet the symptoms became gradually aggravated, and a very extensive crop of spots of purpura appeared over the entire body. Tincture of larch bark was now substituted for the iron, in fifteen-drop doses, to be taken every two hours.]

The immediate improvement which resulted from this medicine was most remarkable: all traces of purpura disappeared, and his strength became so perfectly restored, that on the 23rd instant he ceased to require further treatment.

[Three other interesting cases are also related, in which improvement seemed to be owing to the administration of this remedy.]

Having been for some time in the habit of prescribing preparations of larch bark in cases of discharges from mucous surfaces, and being satisfied of its efficacy as a tonic and styptic, I thought it well deserving of a trial in hemorrhage attended with debility.

The following is an extract from a communication read by Dr. Moore before the Association of the College of Physicians:—"The tincture of the larch bark is of a dark carmine colour, has an agreeable 'pinic' smell. In taste it partakes of the oleo-resins; is styptic and carminative. It is one, if not the most elegant, form at our disposal of prescribing a terebinthinate, either as an addition to a compatible expectorant, or other fluid mixture, or to be given *per se*.

"The dose of the extract is from gr. i. to gr. v.; of the tincture, from ʒss. to ʒiij."

In the treatment of children's diseases, it is of great importance that we have at command remedies combining at the same time both efficacy and palatability. The value of terebinthinates in the treatment of purpura has long been acknowledged, the difficulty of their exhibition having alone restricted their employment in many instances; whereas in the preparations of larch bark, whilst all the valuable styptic qualities of the turpentine are retained, its exhibition is attended with no disagreeable results, either in children or adults, as far as my experience goes.—*Dublin Hospital Gazette, Jan.* 15, 1859, *p.* 19.

ORGANS OF RESPIRATION.

37.—ON CERTAIN FORMS OF PNEUMONIA.

By Dr. E. Latham Ormerod, Physician to the Sussex County Hospital.

[Dr. Ormerod in this interesting paper, well observes that many of our most interesting cases of pneumonia are not so much primary as secondary, coming on rather late, during attacks of other diseases, especially fever and rheumatism.]

The pneumonia of fever deserves careful attention. Its anatomical characters after death are indeed involved in all the perplexities which the subject of hypostatic pneumonia and pulmonary collapse involves; and the condition of the posterior portion of the lungs is sometimes not less difficult of interpretation by the ear during life, than by the eye of the anatomist after death. Yet it has often a very definite history and very characteristic symptoms; and its clinical distinctions from bronchitis or collapse of the lung are often readily appreciable, and in the latter case at least, directly applicable to practice.

Pneumonia is a late complication of fever, rarely coming on before the second or third week, and connected rather with convalescence than with the downward progress of the disease. This fact favours, to a certain degree, the opinion that pneumonia is an accident, under the circumstances, and depending on some incautious exposure to cold. And, in further confirmation of this opinion, I may observe, that this complication is most frequent in the spring and autumn months, which are precisely the periods when, on general grounds, such an occurrence would be most probable. But, on the other hand, the liability to pulmonary complication will be found, I believe, to vary inversely as the liability to cerebral or intestinal affections during the same period; as if there were really a type of fever characterised by this undue prominence of one set of symptoms. And, on an impartial review of the evidence, this conclusion seems the most probable.

But, apart from these abstract questions, clinically speaking, the pneumonia of fever deserves all the attention which its symptoms will be pretty certain to attract. The circumstances attending the intercurrence of pneumonia in fever are often very striking. The story is told in a few words. We may have been sustaining life with difficulty by the constant exhibition of stimulants; but this is all changed with the accession of pneumonia. The pulse rises, and local depletion even is often required. and borne very well; and, as this change in the general symptoms appears, the feeble respiration and equivocal moist sounds in the depending portion of the lung, are replaced by the characteristic physical signs of pneumonia.

Our means of treatment are, under the circumstances, very much limited. Depletion can be employed only very sparingly, and with the aid of general stimulants. Mercury and antimony are scarcely admissible: at least, my own experience has not impressed me favourably as to the results of their employment. However, local depletion and counterirritation are generally adequate, if not for the complete and immediate removal of the disease, at least to reduce it within certain safe limits; which is perhaps as much as may reasonably be attempted in the treatment of any of the complications of fever. And the result is generally favourable; both immediately, as to the issue of the more threatening symptoms; and ultimately, as to the complete repair of the local disease.

The pneumonia of acute rheumatism, like the corresponding secondary affection in fever, usually supervenes at a comparatively late period; but these two forms of the disease have not much else in common. I have already observed how, in fever, when pneumonia comes on, with the new disease comes strength to allow us to treat it in the way which experience shows to be mostly successful. But it is otherwise in rheumatic pneumonia. The general symptoms on its accession are changed, not in kind, but in degree, and for the worse. It comes on when the constitution is already suffering most severely from inflammation of one of the most important organs. Just when we might doubt whether our poor patient could suffer more pain and distress, and yet life go on, this further complication usually arises. Just when all our resources have been exhausted, we may have to watch, without means of interference, the progress of the most acute pleuro-pneumonia.

Secondary pneumonia is, on these accounts, much more to be dreaded in acute rheumatism than in continued fever. Few cases of acute rheumatism terminate fatally without this complication; and in bringing about the fatal issue, the pulmonary affection generally takes an active part. It would be impossible to recall, in any general description, the clinical interest which attaches to a case of this kind, where all the dangers and difficulties are successively developed and accumulated; and the long daily records of such a case forcibly remind one of Gooch's remarks on notes too lengthy ever to be read after they have been written.

Without any over refinement, this subject may be pursued farther. There are specific characters observable in rheumatic pneumonia, distinguishing it from the ordinary form of the disease. One is the mode in which it originates, namely, in bronchitis. The bronchitis, however, does not long continue as such. I cannot, indeed, recall the observation of a single severe case of rheumatic pulmonary affection where bronchitis has continued as such throughout, without running into pneumonia. As traced by auscultation, the bronchitis displays specific characters of its own, in its tendency to attack the minuter ramifications of the bronchi, instead of the larger tubes, in the first instance; and the peculiarities of the disease are not wholly lost among the various changes which dissection displays in fatal cases: for, on carefully looking over the records of dissection, the morbid appearances do not seem, on the whole, to represent the same results of pneumonia as would probably have been found in as many simple cases of this nature. The terms congestion and softening, and the equivocal expression splenisation,* occur more frequently than the explicit mention of red or grey hepatisation. And the bronchial origin of the pneumonia shows itself further in a tendency to lobular, rather than lobar diffusion.

We must, however, in these rheumatic cases, allow largely for the period at which the disease proves fatal. At a very early period, the characteristics of early pneumonia would naturally predominate. At a later period, we must not overlook the possible effect of growing valvular disease of the heart in modifying the changes going on in the lungs. And I must add, that the ordinary anatomical characters of pneumonia are of more frequent recurrence in M. Bouilland's recorded cases than in those which my own note-books furnish.

On another point I can speak less confidently: but I do not think that the tendency to plastic fibrinous exudation is as strong in rheumatic as in ordinary pleurisy. Still, there are other circumstances, and more particularly the late period at which pleurisy supervenes in rheumatism, to be taken into account, before assigning to rheumatic pleurisy a specific character so unlike what the general pathology of rheumatism might have led us to anticipate.

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* Probably had I to observe these cases over again, the term "collapse" would supersede that of "splenisation."

There is little more to add on this subject. The clinical history of rheumatic pneumonia has been drawn by Dr. Latham ('On Diseases of the Heart,' Lect. ix) with even more than the usual elegance and truthfulness of his descriptions; and all that I have observed myself of the statistics of the disease may be comprised in a few words.

In sixty-one rheumatic cases analysed for this purpose, pulmonary inflammation was found to have occurred twenty-four times. Of these cases, four were of simple pleurisy, of which two were fatal; three were of pleuropneumonia, none of which were fatal. Thus much for its frequency. Of its importance, it may fairly be said, that the question of life or death in rheumatic pericarditis turns more often on the affection of the lungs than on that of the heart; and, though pulmonary inflammation may arise during acute rheumatism without the occurrence of any cardiac affection, yet it seems as if the pericardial complication were necessary to the manifestation of the pulmonary inflammation in all its severity. ('Med. Chir. Transactions,' vol. xxxvi, p. 11.)

It is not the essential nature of rheumatic pneumonia which renders ordinary remedies inapplicable, so much as the circumstances under which it occurs. Indeed, all that general experience approves in ordinary pneumonia is available here under the same general limitations. It is only the collateral circumstances which forbid the employment of active depletion, and confine us so closely to the use of counter-irritation. If I were to name any single specific indication of treatment which the rheumatic origin of pneumonia suggests, it would be, I should think, the preference of opium and ammonia to wine for the support of the exhausted nervous system, when this, as is so commonly the case, demands especial attention.

This general exhaustion accompanying rheumatic pneumonia, of which I have been speaking, as contraindicating the employment of active antiphlogistic treatment, has been regarded in quite another point of view by some physicians. It has been regarded, namely, as an effect of too active treatment; and further, as itself the cause of the secondary complications. This subject would not be complete without some inquiry into the merits of this question.

The evidence on which this opinion rests seems to me partial and insufficient. Facts have been collected mainly on one side, the positive evidence quite eclipsing the negative. We have abundant records of the results of active treatment, both for good and for ill; but comparatively few records of what happens when the efforts of nature are not interfered with. And what perhaps has done most to condemn the system of active treatment is the fact that its most untoward consequences have been observed in his own practice, and recorded, by one of it most enthusiastic advocates.

It were well to preserve a question of such vital interest as the treatment of acute rheumatism free from all prejudice or party feeling. There can be no doubt that what has been so inappropriately called the heroic plan is productive of great mischief; but the unfavourable results of this plan, of doing everything by one remedy pushed to extremes, must not be urged as an argument for the entire rejection of this remedy. General experience, overlooking abstract difficulties, seems to be pretty well agreed that there is no reason for assigning to acute rheumatism a pathology altogether different from that of all other acute disease. It is no more than what the experience of nearly all physicians will confirm, to say that we have the same evidence in acute rheumatism as in other acute diseases, of the beneficial effects of active antiphlogistic treatment, when employed on its familiar indications. And this holds not only as to the prevention of secondary complications, but as to their cure, should they arise. Further, we have the same evidence in all alike (though the principle has, unfortunately, been pressed here beyond its legitimate application) that depletion employed wrongly, or too freely, will actually tend to produce the secondary inflammations it was designed to prevent.

Yet, again, general experience dissents from the universal adoption of one arbitrary plan, whatever that plan may be, in the treatment of acute rheumatism, bleeding as well as the rest. But we must not, because blood-letting can be made so very mischievous, forget how much good it is capable of effecting, if only it be used in its proper place, like all other remedies for acute rheumatism. It would be beside my present purpose to speak at any length of these. I would only add one remark. Each claims the first place for his favourite remedy, be it purging, bleeding, nitre, lemon-juice, or whatever else; in my own opinion, the alkaline carbonates. How many concur in assigning the second place, should their favourite specific fail, to calomel, opium, purgatives, and depletion, as ordinary indications may suggest?

We may regard pneumonia as constituting a regular part of these two diseases, rheumatism and continued fever. It is not indeed essential to them; for they are often transacted without its occurrence, and we know of no phase during their progress, which requires the development of pneumonia, or something instead of it. But in both diseases there is a certain stage at which we must be prepared for the occurrence of pneumonia, as if its connexion with the original disease were more than merely accidental. The absence, however, of any specific effects of the secondary on the further course of the original disease leads us to infer that this is a complication only, not an opposite action; that it is accessory merely, not critical.

Accessory pneumonia finds some of its most apposite illustrations in cases of phthisis or valvular disease of the heart, or of granular disease of the kidney; the pulmonary inflammation being simply an addition, however serious, to the original disease, and its pathology being in great part external to the lungs. Pneumonia arising under these three different conditions preserves certain characters common to them all alike, which may be very briefly summed up thus. Its progress is rapid, more so, perhaps, in appearance than in reality, from the slight general symptoms under cover of which the disease may advance before it is discovered. It is easily removable under appropriate treatment, but is singularly apt to recur; and in its treatment there is the greatest reward for discrimination. A large blister, a slight cupping, or watery evacuations from the bowels and kidneys, will respectively sometimes produce the most striking effects for good, according as the pneumonia may be connected with phthisis, or with disease of the heart or of the kidneys; and I think that I have seen untoward results equally striking ensue, when these collateral indications have been disregarded.

The coincidence between inflammation of the lungs and biliary derangement of all degrees, up to complete jaundice, or to what Stoll has distinguished as bilious pneumonia, is so very frequent, and of such pathological importance, that it should not be passed over wholly without remark; and, as I cannot define the connexion to be either accessory or critical, in the absence of any rule of classification, the subject may most conveniently be introduced here, between the notice of these two forms of disease. In assigning to this coincidence a deeper cause than the mere juxtaposition of the lungs and liver suggests, I am claiming no more than the facts of the case warrant; for jaundice is not particularly connected with inflammation of the base of the right lung. But, even were it so, had the opinion of the connexion of pneumonia and jaundice by extension of inflammation in so far a plausible foundation, yet the explanation would be insufficient; for partial inflammation of the substance of the liver is by no means necessarily followed by jaundice.

I cannot, from my own experience, confirm Grisolle's observation, that cases of bilious pneumonia are singularly amenable to active treatment, of which bleeding and free purging should constitute an essential part. I do not, indeed, feel sure that a case of Stoll's bilious pneumonia has ever come under my observation; and would leave it for more extended experience to say, whether this nosological distinction has any practical value as regards the question of treatment. (Grisolle, *œuv. cit.*, p. 405.)

The pathological interest of the problem is, however, very great, and stretches so far beyond the question of the connection between jaundice and pneumonia, that it were ill to rest content with an insufficient explanation which looks no further than this. It is another point of view from which to study the functions of the liver. And the pathology of this organ, just as that of the heart has done, may help to clear up some points in its physiology. We need something more intelligible than the phrase of an interchange of functions or a sympathy between the lungs and the liver; something more than mere contiguity to express the relation of pneumonia to jaundice, of inflammation of the parenchyma of the lungs to excessive biliary secretion. There is certainly some specific connection, independent of the amount of pulmonary obstruction.

Critical pneumonia is most familiarly known in connection with measles and small-pox, where the stress of the disease is suddenly transferred from the surface of the body to the substance of the lungs. My own very limited and favourable experience of pneumonia in this form, indeed, would lead me to consider it as accessory rather than critical; and to regard its occurrence under these circumstances as the effect of some extraneous cause, having no specific connection with the original disease. The change of symptoms, however great, has always seemed reconcilable with this supposition. The larger experience of Grisolle (*œuv. cit.*, p. 353), however, has detected in the rapid progress of such cases of pneumonia apparent evidences of their specific nature and origin.

It is superfluous to stop here to inquire whether the term retrocession or repulsion be more correctly applicable to these cases. The question is not unimportant in a prophylactic point of view; but it has little or nothing to do with treatment. For from whatever cause, internal or extraneous, the pulmonary affection may arise, once set up, it asserts its own independent importance, and demands its own remedies.

In employing terms of this kind, we must bear in mind that they are useful and necessary only in their legitimate sphere: that is, so long as we regard them only as convenient formulæ for investigation, not as expressing ascertained truths. With this understanding, I would venture to apply to the following cases terms expressive of a more intimate acquaintance with the operations and intentions of nature in disease, than the facts might otherwise strictly justify me in employing.

I have spoken thus far, under whatever names, of secondary pneumonia constituting a part of some other disease and often adding much to its danger. But we may regard it in yet another point of view, under a form to which, if to any other, the term *critical* is most happily appropriate.

The general history of this class of cases may be sketched in a very few words. Cases occur now and then, where, after a more or less protracted obscure ailment, something directs attention to the chest. And there we find pneumonia, and, under the more definite treatment which this more positive knowledge suggests, the patient rapidly recovers; the pneumonia passes away; and with it all the obscure ailments, on which the pulmonary inflammation had engrafted itself, subside.

[It has often occurred to us in watching these cases of pneumonia in fevers and rheumatism, that they might be owing, more frequently than is supposed, to physical rather than morbid and specific causes, to a want of power in the heart to do its work well. Hence, almost invariably, in the pneumonia of fever and often in rheumatism, we have more success in keeping the patient well *up* rather than pulling him *down*, even from the early stages of the attack. The energies of the circulation must not always be mistaken for disease; they may be simply a conservative process, and require assisting the moment they flag.]—*British Medical Journal, Dec.* 11. 1858, *p.* 1025.

38.—*Complete Recovery from Pneumonic Consolidation of long standing.*—At page 10 of the 'Medical Times and Gazette' for January, 1858, we recorded the particulars of a case under the care of Dr. Risdon Bennett, at the City of London Hospital for Chest Diseases. It was that of Alfred Kilby, a boy aged four years, who had been admitted in a state of extreme emaciation, with pneumonic consolidation of almost the whole left lung. It was clear that the pulmonary disease had then existed for several months, and it became a question of much interest as to how far recovery might be expected. The boy remained under observation for two years afterwards, and steadily gained ground. Our last note brought the case up to July, 1854; the admission having been on June 21, 1852. When discharged the boy was stout and apparently quite well, percussion being almost clear over the affected side. A few days ago we recognised the mother of this boy at one of our hospitals, and obtained an opportunity of again examining his chest. During the four years which have passed since the last note he has never had any relapse, and is now a well grown lad in the enjoyment of good health. The contrast in percussing the posterior lobes of the two lungs is still marked; but there is free respiration over the left, the sounds being, however, somewhat harsh and bronchial. He has no expectoration, and the two sides of the chest are almost equally well expanded. The treatment under which this very satisfactory result ensued, was by local counter-irritants, and the prolonged administration of sarsaparilla and iodide of potassium.

We often have to regret in recording cases from hospital practice, the impossibility of following the patient's history after his discharge. It is well known that many cases, of which the first result is apparently most triumphant, relapse after leaving the hospital; and that thus by a record unavoidably premature, an unfair impression is conveyed to the reader. It is with much pleasure, therefore, that we are able in the above instance to really complete the case, by extending its narrative over a period of more than six years.—*Med. Times and Gazette, Nov.* 13, 1858, *p.* 499.

39.—*Ergot in Phthisis Pulmonalis.* By Dr. Barent P. Staats, Albany, N. Y.—[The attention of Dr. Staats was first drawn to ergot of rye as of medicinal use in phthisis pulmonalis, by an abstract from a Paris medical paper last spring. The first case in which he had the opportunity of trying its effects was]

A young man of intemperate habits, 28 years old, hair light-coloured, eyes blue, cheeks red, chest narrow and flat. He had been admitted into hospital August 10th. His pulse was 100; respiration 29; had night sweats; copious purulent expectoration, slight chills in the afternoon, followed by fever and slight diarrhœa. He complained of severe pain under the left clavicle, and in the left side of the chest. Percussion dull upon both sides of the chest, with evident disease of both lungs. On inquiry I found that his father had died of phthisis. I prescribed 4 grs. of pulv. ergot, ½ gr. of ipecac., with 1-10 of a grain of sulph. of morphia every six hours; a strong liniment of acetic acid and spts. of turpentine to be applied to the chest, and a full animal diet.

After taking the medicine four days his pulse and breathing became less frequent, the pain of his chest and the diarrhœa ceased, and his expectoration was diminished.

This treatment was continued for three weeks, when he had recovered to such a degree that the ergot was omitted. I gave him some mild tonic, and soon after he was discharged from prison. I have seen him repeatedly since, and although he has resumed his drinking, he has had no return of the disease.

I have had two more cases as strongly marked as the above, which I treated in a like manner, and with the same result.

[It seems most probable in the present state of our knowledge that but little will ever be gained from simply medicinal means, except as adjuvants, in the treatment of phthisis. Still we must not at once reject new remedies because we cannot explain their action. At first it seemed rather difficult to explain the action of the long-continued administration of small doses of tannin recommended previously (vol. xxxiv, p. 388). Yet this remedy we have since used in a very large number of cases, of course only as an adjuvant to other means, and with the greatest success.]—*American Med. Monthly, Feb.* 1859, *p.* 99.

40.—*Clubbing of the Finger-ends as a Symptom of Thoracic Disease.*—A very interesting case has been recently under care in St. George's Hospital, of large subclavian aneurism, in which the circulation of one upper extremity, had for long been greatly interfered with. We do not, however, now advert to its details any further than as they bear upon the right interpretation of clubbing of the fingers. The fingers of the affected arm had become clubbed in a very marked degree, while those of the other hand had retained their original shape. The man was not the subject of phthisis or of tubercular deposit in any form. It seems, therefore, clear that simple retardation of the circulation in the part is, if long continued, an efficient cause of this peculiar symptom.

Clubbing of the fingers, when not an individual peculiarity, but coming on during ill-health, has often been considered an indication of pulmonary phthisis. By what steps of causative influence it was produced no one knew. Some years ago, in the practice of the City Hospital for Diseases of the Chest, the writer took considerable pains to ascertain its value as an indication of phthisis, and to discover whether it was in any way connected with the tubercular dyscrasia. Several cases of chronic empyema discharging through the bronchial tubes, displayed it in a very marked degree, while in none of them was there any reason to suspect tubercular disease. For a time he felt inclined to connect it with profuse expectoration from whatever cause rather than with tubercular disease. The observation of some instances of cyanosis in which it was present, however, overthrew this hypothesis. The case of a lad under Dr. Barker's care, in St. Thomas's Hospital, has in particular fixed itself on his memory in connexion with this point. The boy had congenital malformation of the heart, and his face and extremities were constantly livid and blue. His fingers were remarkably clubbed, and so were all his toes, as is very commonly the case. He had never had any cough or expectoration. The occurrence of this symptom in the cyanotic removes it in a very positive manner from any necessary connexion with the tubercular diathesis, since, as is well known, blue blood is to a certain extent antagonistic to that condition. Thus, then, it seemed fair to conclude that a symptom occurring in phthisis, empyema, and cyanosis, must depend upon some condition which these affections have in common, and not upon tubercle, which is present only in one, or on profuse expectoration, which occurs in only two. Retardation of the circulatory fluid and its insufficient aeration, seemed to be this one phenomenon common to them all, and in further support of this view was the fact that it is far from being universally met with in phthisis, and usually seems proportionate in degree to the evidences of pulmonary obstruction (purple lips, &c.)

It is needless after the above enumeration to point attention to the peculiar interest which Dr. Ogle's case possesses as furnishing a sort of crucial proof of the truth of the conclusion arrived at. The phenomenon in question being exhibited in it in one hand only, it was clear that it could not depend on a constitutional cause, but must have been induced by some influence peculiarly exerted on the affected member. There could be little difficulty, under the circumstances, in saying what this influence was. In future, therefore, we may safely conclude that clubbing of the ends of the fingers, with whatever form of disease it may be associated, is an evidence simply of impeded circulation and of deficient oxygenation of the blood.—*Med. Times and Gazette, March* 19, 1859, *p.* 291.

41.—*New Kind of Stethoscope.* By Walter Bryant, Esq.—This improvement consists of a movable extremity, or body-piece, made of gutta percha or vulcanized india-rubber, and is so constructed as to fit into the tube of any of the stethoscopes ordinarily used. It will be found that in this piece the axis of the tube is placed at an acute angle to the edge which is applied to the patient's body. By this arrangement it will be observed that, one extremity of the stethoscope thus provided being placed on the chest, the other extremity, or the ear-piece, can be directed most conveniently to the ear of the auscultator. The advantage of such an arrangement is evident. For example, an auscultator, standing on the left side of the patient's bed, has to examine the right side of the chest: the difficulty of stretching across the patient in such a case is painfully familiar to most physicians. By this instrument, for the invention of which the profession is indebted to Mr. Walter Bryant, this inconvenience is altogether avoided. Many other useful applications of the instrument will suggest themselves to the practical auscultator. For instance, it will be found most convenient in examining the back of the axilla when the patient is unable to rise: in the case of a female, whose stays it may be inconvenient to remove; or in cases of fever or small-pox, where it may be desirable to avoid too close proximity to the patient. We have seen the instrument in use by Dr. Quain at the Brompton Hospital, who finds that it most fully answers the inventor's intentions.—*Lancet, Jan.* 1, 1859, *p.* 10.

42.—*On a Mode of Effecting Artificial Respiration.* By G. M. Humphrey, Esq., Surgeon to Addenbrooke's Hospital.—Not only does the resiliency of the thoracic parietes restore them to the ordinary condition of expiration when they have ceased to be influenced by the contractions of the inspiratory muscles; it will do the same if by any means, such as the pressure of the hands upon the chest, a preternaturally forced state of expiration be induced. In this way artificial respiration may readily be maintained without any apparatus or difficulty, by simply squeezing the fore and lower part of the chest between the hands, so as to drive out the air and effect a forced state of expiration; and then removing the hands, when the chest will expand and the air re-enter.

The proceeding may be repeated as long as necessary. In children, especially, when the walls of the chest are flexible and elastic, this plan will often answer well. I am sure that I have more than once saved life by resorting to it.

43.—THE TREATMENT OF CROUP BY CAUTERIZATION AND CATHETERISM OF THE LARYNX.

By Dr. Horace Green, New York.

[It is now rather more than ten years since Dr. Horace Green first drew attention to the treatment of croup by topical applications, pronouncing it entirely practicable, safe, and, where judiciously employed, "in the highest degree efficacious."]

This method of treating a disease, hitherto so generally unmanageable, was founded among others, upon the following propositions (which were then advanced, with regard to the pathology of the disease,) namely, "That the essential characteristics of true croup consist in an inflammation of the excreting surfaces of the fauces, larynx, and trachea, which is always productive of a membranaceous or an albuminous exudation.

"2. That the membranaceous concretion, which is found coating the inflamed mucous surface of the parts in croup, is an exudation, not from the membrane itself, but is secreted principally by the muciparous glands, which so abundantly stud the larynx and trachea.

"3. That the exudative inflammation commences, invariably, in the superior portion of the respiratory passages, and extends from above downwards, never in the opposite direction."

In this work eleven cases are recorded, in the treatment of which cauterizations of the larynx were employed, and relied upon as among the most efficient of the measures adopted. The date of the first case of croup, recorded as having been thus treated, is on the 20th of November, 1842; although cauterizations of the larynx and trachea, in the treatment of diseases of these organs in adults, had been employed as early as November, 1838.

[The following cases selected by Dr. Green are of great interest.]

Case 1. On the morning of the 31st of December, 1855, Dr. J. O. Smith, a member of the Academy, called at my office, and requested me to visit with him the daughter of Mr. Hachagne, of Prince Street, who was very ill with the croup. To my invariable objection, that I visited no patients away from my office, Dr. Smith urged the severity and danger of the case, and the distress and anxiety of the parents. In short, I was taken into his carriage and carried to the house of the patient. The child, four years of age, who had been four days sick, was exhibiting all the characteristic symptoms of true croup, in an advanced stage, and of a very severe grade. The countenance of the patient appeared anxious, the face had lost its natural color, the voice was stifled, the respiration very difficult and of a hissing character, and the whole symptoms indicated imminent danger from approaching asphyxia.

The ordinary remedies having been faithfully tried by Dr. Smith, he requested that cauterization of the larynx should be immediately employed. Assisted by the doctor, I passed a small sponge-armed probang, saturated with the solution of nitrate of silver, (℈ij. to ℥j. of water,) into the larynx and trachea. After a delay of some ten or fifteen minutes the operation was repeated in the same manner. I am not aware that any other medical treatment was employed. The next morning, January 1st, Dr. Smith called on me, and stated that the symptoms had somewhat improved during the day, and that the following night was passed with less distress than had occurred on the preceding; but that the child was dangerously sick, and the operation must be repeated. I accompanied Dr. Smith, and found his patient as he had stated—certainly no worse, but still presenting a very unfavourable appearance. Cauterizations were again employed, as on the preceding day. After the second application of the caustic, the symptoms soon diminished in severity, and during the day and night of the first of January the improvement continued. At ten o'clock on the morning of the 2nd, when we called, we found a marked and most favourable change had taken place in our patient. A single application was made on this day, and ultimately the child recovered perfectly.

Case II. I was called, Dec. 15, 1853, to visit a case of croup, which had been treated nearly a week by two homœopathic doctors of this city. I refused to go. The father of the patient then stated that his child had been abandoned by the doctors, who considered the case quite hopeless; but that his son was still living, and he begged I would visit him, and endeavour to save his life. I stated to my assistant, Dr. Richards, that I would see the patient once, if he would then take charge of the case. We found the child, a little boy, four and a half years of age, struggling for breath, in the last stage of membranous croup ,apparently dying of the disease. It is unnecessary to describe at length the symptoms. The difficult stridulous respiration, the suppressed cough, the pallid countenance, and livid lips exhibited at once the urgency of the symptoms, and the danger of suffocation. The previous medication we could not ascertain, except that *antimony* had been freely given, and the child had been repeatedly and severely vomited. A small armed probang, the sponge saturated in a strong nitrate of silver solution, was passed with some difficulty into the larynx and trachea. Some minute fragments of the false membrane were dislodged by this operation, but no marked mitigation of the symptoms followed the application; and after a delay of ten or fiften minutes the operation was repeated. If any relief followed the second application it was of short duration. All the unfavourable symptoms soon returned; the struggling for breath, the dry and harsh tracheal respiration, the frequent and weak pulse pointed, as we thought, to a speedy fatal termination; and I left the case, believing that such would be the result. Dr. Richards remained with the patient, and several times during the night applied the caustic solution. Some relief followed each application, but the next day, the 19th, the case appeared so desperate that Dr. Richards, fearing the case was hopeless, after repeating the application thoroughly to the larynx and trachea, left the patient. with directions to be sent for in a few hours, if the child continued to live. He was not called for again, and nothing more was heard from the patient, who was supposed to be dead, of course, until several weeks after this, when the father came into my office "to settle the doctor's bill for attendance upon his boy." Dr. Richards ventured to ask the father how long the poor boy lived after he left him, when he was assured that his son was alive, and in good health; that after the last application he began to improve, and was soon so much better that it was not thought necessary to recall the doctor. In the course of a week he was quite recovered.

In the work on croup to which I have referred, I have expressed the opinion, with reference to the operation of tracheotomy, that we are not justified in having recourse to this measure, until the means now at our command, both topical and general, have been exhausted. Subsequent experience has more fully confirmed me in this opinion. Even in those cases of membranous croup, where the disease has passed on to the last stage—the stage of asphyxia, in which a resort to tracheotomy has been considered as the one which can afford the only means of relief—at this stage, we say, patients have been, and may be saved by other operations than that of tracheotomy. Let me illustrate.

A few years ago, January 5th, 1850, I met a member of this Academy in the treatment of a case of croup of much interest. It was that of a son, and I believe the only son of a clergyman, (Rev. Ansel Leo,) of this city, five years of age. He, too, had been subjected to Hahnemannic treatment several days before any efficient measures were adopted. The case threatening to prove fatal, was either abandoned by the homœpathic doctor, or he was dismissed, I cannot say which, and Dr. S. was called to attend the case. He found the child in the advanced stage of membranous croup; almost in the stage of collapse. Among other measures employed by the doctor, an attempt was made to vomit the child by administering an emetic of sulphate of copper, with the hope of dislodging the false membrane from the trachea, but the effort failed entirely, no emetic effect being produced by this measure. I was called to visit the patient on the 5th of January, and saw the case for the first time at 11 o'clock, a.m., of that day. I found the boy lying in a state of asphyxia. The face and lips were purple, extremities cold, the surface clammy; violent efforts at inspiration were occasionally made, but the anæsthesia was complete. Dr. S. stated that he had administered, while the patient could swallow, a strong emetic, without producing any effect whatever. Tracheotomy had been considered as presenting the only possible chance of relief, but this chance was deemed too doubtful to warrant its adoption.

At my request Dr. S. took the patient on his lap, and sustained him there, with his head thrown back on the doctor's shoulder. In this insensible condition the lower jaw fell, the tongue was readily depressed, and nearly the entire epiglottis brought into view. A small sponge probang, wet with the nitrate of silver solution, was easily passed into the larynx, through the rima, and carried down the whole length of the trachea. This was done without the child's exhibiting any opposition or apparent consciousness. On withdrawing the instrument, which appeared for the moment to enlarge mechanically the calibre of the air-tube, the chest was expanded by a full inspiration. The sponge was again wet in the solution, and the same operation immediately repeated. This time the operation was followed by some struggling and a cough, and considerable quantities of viscid fibrinous mucus and broken portions of membrane were thrown up by the cough and vomiting. After a delay of ten or fifteen minutes the probang was introduced the third time into the trachea. The child, still insensible, was then placed in bed; and it was arranged to meet Dr. S. in two hours again, and see the patient.

Two o'clock, p.m. Found the patient at this hour still insensible, but the countenance was not so livid, the surface and extremites warmer, and respiration somewhat less difficult. At this visit cauterization of the larynx and the trachea was twice performed in the same manner as at the first visit; and directions were given to administer, if possible, some stimulus and nourishment, when the child could swallow.

Six o'clock, p.m. Four hours later we met again at the bed-side of our patient. As we entered the room the little fellow raised his head, and smiling, thrust out his hand to the doctor, whom he recognised, and attempted to speak! A great change had taken place in our patient. Soon after the applications at two o'clock were made, quantities of viscid mucus and patches of fibrinous matter were ejected, after which the respiration considerably improved, and the child was able to swallow nourishment and some weak stimulus. From this hour the croupal symptoms began to disappear. No further topical applications were made, and the patient under appropriate nourishment recovered perfectly; but it was three weeks before his voice was restored to a sound above that of a whisper.

I have received during the past few years, from members of the profession in different parts of the Union, the histories of many interesting cases of croup, which have been treated successfully by topical measures.—*American Med. Monthly, Feb.* 1859, *p.* 87.

44.—ON THE INTRODUCTION OF A TUBE INTO THE LARYNX IN CROUP.

By M. Bouchut.

M. Bouchut has laid before the Académie de Médecine a proposition to treat croup by introducing a silver tube deep into the larynx. Having ascertained the facility with which this may be done upon the dead subject, he put the practice into force in two cases of membranous croup brought into the Sainte Eugénie Hospital during the virulent epidemic that has recently prevailed in Paris. He employs three descriptions of instruments: a small curved catheter open at both ends, as a director for the tube; a straight cylindrical tube, one and a-half or two centimetres long, furnished at its upper part with two projecting rims (one placed around its orifice and the other at six millimetres below) and pierced with a hole for the passage of a retaining silk; and a protecting sheath for the index finger or dental dilator. Having ascertained on passing the tube in the subject that it entirely entered the larynx, its upper margin being placed below the superior corda vocalis, the inferior corda fitting into the space between the two rims of the canula, and consequently above the lower rim corresponding to the internal surface of the cricoid cartilage, M. Bouchut employed it in the case of a little girl brought in with diphtheria and croup in the stage of asphyxia. The canula remained *in situ* during thirty-six hours without inducing suffocation or interfering with the functions of the epiglottis, and the symptoms of asphyxia disappeared. The larynx was thus freed from the obstructing false membranes, and the croup must be considered as having been cured. The child, however, died from the diphtheria and from a lobular pneumonia set up the night after the tube was introduced. The second case occurred in a boy 3½ years old, in whom symptoms of asphyxia had commenced. Improvement soon took place, false membranes of a large diameter being discharged through the tube, which remained *in situ* during forty hours, with the exception of one temporary removal, and never becoming displaced during coughing. At the end of this period, the fits of suffocation and asphyxia, which had been kept off for two days by means of the tube, returned; and the Internes, believing death to be imminent from obstruction occurring below the glottis, performed tracheotomy. Some false membranes were thus removed, and the tube was found to have remained in its place unobstructed.

M. Bouchut considers that these two facts establish—1. The facility with which tubage of the glottis may be performed by fixing a canula on the lower cordæ vocales, which does not interfere with the functions of the epiglottis. 2. The tolerance of this tube by the larynx. 3. The possibility of relieving the asphyxia of croup by this means in preference to tracheotomy. 4. The facility with which large pseudo-membranous concretions formed in the trachea and bronchi may pass through this intra-glottal tube. 5. The utility of this new resource for surgeons residing in remote localities, destitute of all assistance.—*Union Médicale.—Med. Times and Gazette, Oct.* 30, 1858, *p.* 455.

45.—*Treatment of Croup.*—Mr. Jodin, in a recent communication to the Academy of Sciences, on the nature of croup and on the treatment of this disease by a new method, states that his researches have led him to the following conclusions:

1. That croup and pseudo-membranous angina are merely parasitical diseases, due to the formation of fungi.

2. That the treatment of these affections requires neither general

medication nor incendiary cauterizations; and that they may be cured by simple parasiticidal applications.

After enumerating the various therapeutical means resorted to in this and in analogous diseases, Mr. Jodin declares that he much prefers to these uncertain, alarming, or dangerous remedies, the sesquichloride of iron, which completely impregnates the fungus, exercises its action on the surface only, and may be absorbed without danger. This medicine destroys the parasitic growth, and also modifies favourably the hæmorrhagic condition constantly observable in the affected parts and in their neighbourhood; it further induces expectoration, and thus promotes the rejection of the false membranes.—*Dublin Hospital Gazette, Dec.* 1, 1858, *p.* 366.

46.—*Removal of a Coin from the Trachea.* By C. Sturges Jones, Esq., Chichester.—Mr. J. P. Cole, a professor of music, of Arundel, having by chance, on Monday, the 11th inst., a fourpenny-piece in his mouth, it was suddenly drawn into the trachea. Not being able to remove it by violent coughing, he applied to a neighbouring surgeon, who administered an emetic and other remedies, but to no effect. His professional engagements bringing him the following day to Chichester, and being unable, from pain and natural anxiety, to attend to his duties, he called and consulted me on the subject. As there were no urgent symptoms whatever, I at first doubted his tale, but, on auscultation, I could easily detect the coin lying at the bottom of the trachea, just over the bronchial tubes, there being a perceptible râle, as from the presence of a foreign body, in that locality. Bearing in mind the case of Mr. Brunel, I advised a similar mode of treatment, not, however, proceeding to open the trachea, as I did not consider the symptoms sufficiently urgent to require it; but I simply placed a cushion on the floor, and placing Mr. Cole on his head, I, with the aid of my assistant, suspended him by his legs, at the same time violently striking him several times on the back, between the shoulders, with the palm of my hand. In the course of two or three minutes, during a slight fit of coughing, the coin was dislodged, and fortunately expelled from its perilous position.—*Lancet, Oct.* 30, 1858, *p.* 462.

DISEASES OF THE ORGANS OF DIGESTION.

47.—ON FLATULENCE. ITS SIGNIFICANCE AS A SYMPTOM AND ITS TREATMENT.

By Dr. Thomas Inman, Liverpool.

[The origin of the gaseous matter causing the annoying symptoms for which we are so frequently consulted, may be the product of fermentative or putrefactive changes; it may be swallowed with the food (but this can only be in very small quantity), or it may be secreted by the mucous membrane; and it seems probable that the latter cause is more active than any of the others. Speaking of the circumstances under which the mucous membrane secretes air, Dr. Inman continues :]

The mucous membrane of the stomach secretes air after it has been empty for a considerable time, prolonged fasting being generally accompanied by painful flatulence. This, however, is not universally true, for a perfectly healthy man can endure privation of food without generating flatus at all. The distension is almost in direct proportion to the debility of the system generally, or of the stomach individually, many patients being unable to fast for so short a period as four hours without suffering from flatus severely. This condition is usually relieved by taking food; but it frequently happens, that the presence of food under these circumstances provokes vomiting or painful spasm.

The intestines, like the stomach, secrete air when an individual has been long fasting, and sometimes to such an extent, that the patient, when dressed, seems to be extremely corpulent. I had, not long ago, an instructive example of this. A lady, aged 54, or thereabouts, had been under my care for excessive tympanitis, from which she slowly recovered. After having enjoyed perfectly good health for some months, she heard that a son, in a distant country, was threatened with what she considered to be extreme danger. She could hear no more tidings for a month, and was so devoured with anxiety, that she could eat nothing—a little wine and water was all she took. In the course of two or three days, the abdomen began to swell again, and by the end of the month, was enormously distended with flatus. At the end of that time, good news relieved her mind, but the tympanitis remained, and she was again many weeks ere she recovered her usual shape. During the progress of the cure, little or no wind was passed upwards or downwards, although the passage of flatus had been one of the most distressing symptoms during the advance of the malady. In this and similar cases, it is evident that the flatus was not due to food—that it was formed in the bowels—and that the cure depended not on the expulsion of the wind but on its absorption.

We see phenomena of a similar kind in typhus or other diseases of a low type. In them the tympanitis comes on as the patient's strength fails, and the distension of the abdomen thus becomes a fair indication of the extent of the patient's debility.

We can scarcely fail to associate this in our own minds with the flatus constantly formed in the bowels shortly after death, before all vitality in the body has been lost, and certainly long before putrefaction has set in—and if there be any real analogy between them, we cannot resist the conclusion, that one of the causes of the generation of flatus is, that the mucous membrane is beginning to die—or is, at any rate, in a condition practically resembling that.

If that be the case, we shall certainly be able in every instance where flatulence is present, to find some cause which operates in a depressing manner on the stomach or bowels, or system generally. As far as my experience goes, we do so. It is produced by fasting—by loss of blood—by purging—by prolonged vomiting—by the enervating effects of intoxication—by the weakening influence of excessive muscular action, *e. g.*, after parturition—by the influence of influenza or common "cold"—by the results produced from tobacco in persons unaccustomed to it, or unable to use it comfortably; it is common in hysteria, in chorea; and it is present, more or less, in cases of low fevers, peritonitis, ascites, &c.

In many of these instances, however, it is not particularly noticed by the patient until food is taken, and then only under certain circumstances. Thus a lady who came under my care, some time ago, would have an attack of painful flatulent distension of the stomach in an evening, whenever she had had an unusually harassing day—the time of the invasion was generally determined by taking tea or solid food, yet, if none were taken, the attack was only deferred for an hour or two. During one illness, the stomach was so extraordinarily sensitive, that the exertion of talking, &c., consequent on the presence of many visitors in the sick room, was enough to determine the coming on of the complaint—which could, however, generally be staved off, by the liberal use of champagne.

In cases such as this, we find the flatulence increased greatly by the use of food, but even here there is room for amplification, for one stomach which will secrete vast quantities of air on the introduction of meat or potatoe, &c., will digest quietly, dry bread or biscuit; while another, which will be painfully flatulent after gruel or other slops, will be comfortable after the use of such food as partridge, chicken, or beef; and porter will promote digestion, in many cases, where ale will provoke flatus.

This phenomenon we attempt to explain, by saying, that every stomach has its own peculiar powers, and what is digestible in one person, or at one time, is the reverse in another person or at another time; and that it is certain that food, which the stomach cannot digest, becomes more or less of an irritant. It is argued, too, and with justice, that stomachs, when they are weak, have the same idiosyncrasies as when they are strong, and that there is nothing extraordinary in champagne throwing off an attack of flatus; as we are most of us familiar with the fact, that condiments, such as mustard, pepper, cayenne, wines, and brandy-bitters, are constantly used to give a temporary stimulus to a weakly stomach.

We arrive then at the conclusion, that an enfeebled stomach produces "wind" when it is irritated by the presence of indigestible food—an effect which passes away when its powers are regained.

I must, however, here digress a little, to note that the same effects which produce wind on the stomach in one individual, produce spasm, vomiting, heartburn, or simple gastralgia in another, and that one or all of these may alternate with flatulence.

Now it is strictly rational to believe, that the mucous membrane of the bowel will act much in the same way in respect to flatus as the the mucous membrane of the stomach, and we shall therefore expect to find, that flatulent distension of the intestines will be determined to a great extent by their vital condition, and by the matter introduced into them. We have already seen how meteorism is produced by low fevers and other depressed states of the system; we now regard it as produced by irritants. The question here arises, What is an *irritant* to the bowels? It is difficult to give a categorical answer; for as happens in the stomach, what is a stimulant to one person, or at one time, is an irritant to another or at another time. Thus an aperient is by many considered as a medicine, which *stimulates* the mucous membrane of the bowels to increased secretion, and the muscular coat to more energetic action; while others explain the phenomena, by saying, that medicines are purgative by their *irritating* action, &c. Nor is this difficulty theoretical only, for we actually find in practice, that purgatives will on some occasions relieve the very meteorism which at others they produce or greatly aggravate. Bearing in mind the distinction between a stimulant—a medicament, that is, which gives for a period more or less, additional functional power; and an irritant—a medicament, that is, which provokes an immediate or exaggerated functional operation. We ask, whether the frequent use of a stimulant may not of itself convert it into an irritant?

Now when we inquire closely into the nature of excitement, or the operation of a stimulant, we are compelled to consider it as a financier would a draft upon capital—ordinary revenue failing for the purpose for which the money is required, a portion is withdrawn from the principal, and such withdrawal cannot take place without a small permanent diminution of revenue—or an appropriation of a considerable amount of revenue to refund the capital. We put this into medical language, by saying that stimulation is followed by a corresponding amount of depression. Frequent stimulation, then, we necessarily conclude, is followed by corresponding frequency of depression.

But we know from long experience, that any organ in a depressed condition, is far more irritable than the same in health; and consequently, that the purge, which was a stimulant to healthy bowels, becomes an irritant to one enfeebled by the effects of frequent excitement.

A purgative, then, by frequent repetition, may actually produce the same result it was originally intended to relieve and cure.

If there be any truth in this deduction, we shall find in practice, that aperients are, under certain circumstances, followed by, and actually produce flatulent distension of the bowels; these circumstances being the presence of general or local debility, and an irritable condition of the bowel from whatever cause arising.

We now come to speak of the *Accompaniments of Flatus.*—This need not detain us long. Some are distinctly referable to the same condition of the stomach and bowels upon which the flatulence itself depends ; others to the mechanical effect produced by the distension, and some are due to the mechanical effect of the whole system, which has favoured the formation of the tympanitis. Thus, as we have seen that "wind on the stomach" is due to deficient functional vigour (by which I mean deficient power to perform its natural function), so we may anticipate finding it accompanied with many other modes of dyspepsia. And as we have seen that tympanitis is promoted by intestinal debility, so we may reasonably expect it to be accompanied by constipation or torpidity of the bowels—by some vitiated condition of the usual feculent secretions—by torpidity of the liver, impaired expulsive power in the rectum, and probably piles or fissure in the rectum or about the anus. We might naturally conceive that as the flatus closely resembles in its chemical composition our atmospheric air—that the fæces lying in contact with it in the bowel, would undergo the same changes within the bowel as they do after they are expelled. And as we know that these external changes are attended with the extrication of a large amount of ammonia—and still farther, that endosmose may take place through membranes—we might, I say, reasonably infer, that decomposition would ensue, ammonia be formed, and this be absorbed into the system to the material injury of the blood. But it is remarkable, that our experience of facts does not endorse this conclusion—for the motions are not passed in a decomposing condition, and we have no proof whatever of the absorption into the system of any intestinal gas, not even sulphuretted hydrogen. It is however to be remarked, that the fæces passed by our tympanitic patients, do in reality decompose sooner than those passed by parties in a state of health ; but this is due to the secretions having the same deficiency of vitality as have the organs producing them. The urine of a typhoid patient will decompose with as great rapidity as his fæces, and these scarcely change more rapidly than does his whole body after death. But the influence of vitality upon secretions is too important and special a subject to be discussed now.

The mechanical effects of tympanitis are many of them peculiarly distressing. In one patient it will produce asthma, from pressure on the lower lobes of the lung, the part with which the male chiefly breathes ; and here we may remark, *en passant*, that tympanitis does not generally, if ever, produce the same effect upon respiration in woman as in man—for man breathes chiefly by the diaphragm, the woman by the ribs and shoulders. Woman's frame is prepared beforehand for vast abdominal distension (*i. e.*, during pregnancy.) Man's is not. As tympanitic and even dropsical distension in a woman does not materially differ from uterine enlargement—we have women tolerating, with ease to themselves, a meteorism, which would materially interfere with the respiration of man.

The heart is equally affected with the breathing, and angina pectoris, palpitation, and other cardiac diseases, are aggravated by the mechanical results of tympany. The enormous size which the abdomen sometimes acquires, is such as to interfere materially with the patient's movements, and one lady, whose case I have adverted to, was so bad, that she was unable to put on her own stockings.

Many phenomena accompany tympanitis, because all the organs of the body are more or less in the same debilitated condition as the stomach and bowels. As the latter cannot perform their special functions correctly, so the brain, the lungs, the heart, the liver, uterus, kidneys, testes, &c., cannot perform theirs, and we have low spirits, melancholy, drowsiness, or wakefulness ; headache, palpitation, dyspnœa, leucorrhœa, menorrhagia, chlorosis, or sexual frigidity. Tympanitis may be the disease of which the patient makes most complaint ; but after all, it is no more than one of a number of other symptoms, all of which point to the same conclusion.

If this be so, we shall have little difficulty in determining what is the most correct plan of treatment in this complaint. As in many other instances, we shall find that practice has gone ahead of theory —but that in consequence of an insufficient reading of experience, practice has not become an absolutely certain guide.

As flatulence depends upon the condition of the alimentary canal— the materials that are in it—and upon both of these combined—so our treatment must be directed to the ameliorating that condition, and proportioning the ingesta—dietetic or medicinal to the chylopoietic powers.

If the flatulence depends upon some transient cause, *e. g.*, the use of a cigar the day before, the results of a debauch—of over-fatigue—of mental excitement—prolonged fasting—excessive muscular exertion, and the like—no treatment is necessary beyond quiet, mild diet, and some such gentle stimulant as sal volatile or fetid spirit of ammonia, with abstinence from emetics, purgatives, or any powerful stimulant, such as raw brandy. For immediate comfort, opiate epithems or frictions externally, assafœtida or galbanum pills internally, generally suffice. Soda is good when there is acidity, bismuth where there is much pain, and carminative aperients when there is constipation ; all these, however, are only of temporary use, and must ever be considered as mere auxiliaries.

After the attack has ceased the stomach must be very carefully treated for at least three days, after which time it may be expected to have recovered its tone. All special remedies, however, as far as my experience has gone, lose their influence after a short time, and it is reasonable to conclude, that they do so by the complaint having become constitutional and not simply local.

In addition, however, to these, experience has demonstrated, that advantage may be gained by the external application of such stimulants to the skin as turpentine, with or without the application of the same material to the bowels internally in the form of enema: in the one case absorption taking place through the skin, in the other through the mucous membrane. Oil of rue appears to have as high a character in this way as turpentine.

But the same remarks apply to these as to purgatives, for if the stimulation be carried beyond a certain point, the turpentine acts as a purgative, and the purging so diminishes the intestinal power, that the turpentine acts as an irritant and increases the formation of flatus.

In all cases, however, where the tympanitis is more or less habitual, these temporary remedies, intended for patching a weak part rather than for renovating the whole machine, are of little value, comparatively, and must ever be subservient to those general measures which are calculated to improve the general health. The diet must be managed in close accordance with the digestive powers and the idiosyncracies of the stomach, rather than according to the theoretical views of chemists, or the dogmas of such stomach physiologists as Dr. Beaumont, whose conclusions were based upon observations of one individual man. With attention to diet there must be the most sedulous care of the constitutional powers. What power is present must be very carefully husbanded, and it must be augmented by every available resource: *e. g.*, by steel, quinine, cod oil, and other tonics; wine, ale, and such other stimulants as agree; bearing ever in mind, that even medicine may be prejudicial if not judiciously administered. Change of air often forms a necessary ingredient in the treatment and does more good than anything else.

The duration of the treatment required is sometimes very considerable. I once had under my care a lady, who was two months before any very decided improvement could be detected; but at the end of that time it was very apparent, and in another month the flatulence was entirely cured, and as no flatus had been passed either by the mouth or anus, it is fair to conclude, that it was all absorbed by the intestines.

Another case that came under my notice received no advantage from simple tonic treatment, and though she resided at the top of a hill in a healthy district, she was obliged to go to the sea-side for change; a vast improvement was apparent during the first fortnight, and her shape was entirely restored by the end of the month.

We thus once more find ourselves landed at the same spot on which we have so frequently before alighted, namely, that the best method to cure disease, in whatever organ arising, is to bring back the whole system into a state of health, and that any other method ignoring this fact, or not including it, must necessarily fail.—*Liverpool Medical Journal, Jan.* 1859, *p.* 35.

48.—ON A NEW MODE OF TREATING SEVERE DYSPEPSIA AND CHRONIC INFLAMMATION OF THE STOMACH.

By Dr. Alexander Fleming, Senior Physician to the Queen's Hospital, Birmingham.

In the medicinal treatment of affections of the stomach, I have long been convinced of the great importance of acting directly on the gastric mucous membrane. That, in fact, local treatment is here nearly as valuable as it is in affections of other mucous surfaces, as the eye, pharynx, vagina, and urethra. Hygienic rules and the management of the food are, for obvious reasons, very important in affections of the stomach, and will often cure mild cases without the help of medicine; but I am satisfied that, in the more severe and obstinate forms of chronic gastritis, the local medicinal treatment of the diseased mucous membrane has been unduly neglected—and that it contributes very powerfully to promote the cure.

Of the several medicines which I have employed with a view to their *local* action on the stomach, my experience gives the first place to nitrate of silver; and the observations I have now to make apply to this remedy. It is often given in pill. If this be made with bread-crumb, the chloride of sodium in the bread converts the nitrate into the insoluble and comparatively inert chloride of silver. If made with gum or starch, the pill, on reaching the stomach, causes quickly the secretion of gsstric juice, the chloride of sodium and muriatic acid of which again render the nitrate inert, It can have very little *local* action in the form of a pill. I have for many years, therefore, given the crystallised nitrate dissolved in distilled water, in the proportion of from $\frac{1}{2}$ grain to 4 grains to the half-ounce. The dose is taken at bed-time on an empty stomach, and is repeated every night, every second, third, or fourth night, according to the severity of the disease. The stomach should be strictly empty—the patient recumbent—and he should be made to roll about immediately after taking the medicine. It is thus—before it suffers decomposition—brought into contact pretty freely with the mucous membrane, and gives, at the time and subsequently, evidence of its local action. In many cases, this mode of using the remedy suffices, in conjunction with other means, to effect a cure.

But this method of exhibiting the medicine is not equal to the cure of some of the severer forms of dyspepsia and chronic gastritis; and in these, I have, for the last four years, endeavoured to act more generally and efficiently on the mucous surface by injecting the solution into the stomach. I employ a strong brass syringe and flexible tube—one-eighth of an inch in bore—the gastric end of which has a number of holes so directed that the fluid is thrown in a circular shower outwards and upwards on the walls of the stomach. The injection is made by dissolving from one to four grains of the nitrate in three ounces of distilled water. The operation is for the most part managed easily. Sometimes it causes nausea and retching—oftener not. It excites at first an enduring and grateful sense of coolness in the stomach, and subsequently there are felt pricking and sharp painful sensations, but of a different nature from the pains of the disease. Sometimes one injection is enough ; but I have more frequently had to repeat it two, three, or more times.

During the employment of the injections, the patient takes three times a-day and before food a little morphia or chloric ether, or Indian hemp, in plain or cinnamon water. He is confined to small and frequent meals of milk, and as he gets better this is thickened with arrow root or tapioca, and he is very gradually introduced to a nourishing and easily digestible diet. Counter-irritation to the epigastrium nitrate of bismuth, oxide of silver, gentle tonics, &c., are employed when indicated.

Of the thorough efficiency of this mode of acting on the mucous surface of the stomach, and of its power in promoting the cure, my experience, so far as it goes, is very decided. Although it is now four years since I first tried injection, I have not used it in more than ten cases. I have always, in the first instance, employed the simpler method already described, and resorted to injection only as a last resource; but its greater efficiency would, I feel certain, justify its employment in many of the less severe cases, and give more thorough and speedy cures. It is not my purpose at present, to consider the intimate nature of the mode of cure, or the manner in which the nitrate of silver substitutes healthy for diseased action in the inflamed gastric membrane. I must reserve that interesting question, and the detailed narrative of cases, for another opportunity.

Mr Young, cutler, of Edinburgh, made the instrument I now use for injecting the stomach, and it answers extremely well.—*Med. Times and Gazette, Jan.* 29, 1859, *p.* 108.

49.—*On the Internal Employment of Carbonic Acid in the treatment of Disease.*—[The writer of this article is a gentleman who, for many years, has suffered from chronic derangement of the stomach of a most aggravated character,—has suffered much from many physicians, but been healed by none. He has tried all sorts of waters, amongst others, those of Kissingen, and from these experienced a little benefit. He was led to suspect that the efficacy of many mineral waters in the relief of dyspepsia depended entirely on the amount of carbonic acid they contained. He says,]

Shortly after this I commenced an experiment upon myself with pure water strongly impregnated with the above-mentioned gas, and within less than four weeks' time my health was more improved than it was by my three visits to Kissingen. The improvement in my health is, indeed, now so decided, that I confidently expect a few courses more of the carbonic acid-water will completely free me from my old complaints.

The following directions embody the result of my present experience:—

The carbonic acid-water is to be taken before breakfast.

Let the patient take a tumblerful of the water, and then walk briskly for half-an-hour. At the end of this time another tumblerful of the water is to be taken, and then another half-hour's walk.

This course is to be continued for a month.

A discontinuance of the water for a month is then to take place.

At the end of this time the water is to be begun again, and to be continued for a month, and then to be discontinued for a month, and so on until a cure is effected.—*Med. Times and Gazette, Feb.* 12, 1859, *p.* 170.

50.—*Sarcina Ventriculi.*—[The opportunity of a post-mortem examination of a case of sarcina ventriculi very rarely occurs. A case lately occurred at St. Thomas' Hospital; the patient, a woman aged sixty-four, had previously enjoyed excellent health; constant and characteristic vomiting came on, and in nine weeks proved fatal. The green opaque creamy scum consisted principally of the different forms of sarcina. She died in a state of complete prostration.]

On *post mortem* examination, all the viscera were found to be in a healthy condition. There was no peritoneal inflammation. The stomach contained some matter resembling that vomited during life. *Brit. Med. Journal, Feb.* 5, 1859, *p.* 100.

51.—ON SANTONINE AS AN ANTHELMINTIC.

By Dr. William Abbots Smith, Hatfield Broadoak, Essex.

[Santonine is a principle obtained from the artemisia santonica. The writer has used it in a great number of cases, and considers it "a very safe and efficacious remedy."]

As regards its physical peculiarities, it is a crystalline powder of a white colour, which, however, assumes a yellow tint after long exposure to light and atmosphere; is readily soluble in alcohol and water, and possesses weak acid properties. It has scarcely any perceptible taste, which, with the small quantity which requires to be administered as a dose, forms a strong recommendation in its favour, seeing that the majority of anthelmintic medicines in vogue are very inconvenient in those respects. Its *modus operandi* is as a specific poison to the animal. It may be given in one or two large doses, or in repeated small ones, my usual method being, for a child five or six years old, according to the following formula: santonine, three grains; powdered loaf sugar, five grains; mix, make into a powder, and take one every six hours to the extent of four doses. An hour or two after the administration of the last powder, a dose of castor oil should be given to facilitate the expulsion of the dead worms. Should any signs of the intestinal nuisance present themselves subsequently, a single dose of santonine will usually suffice to free the patient.

In adults, the santonine may be given in about five-grain doses, with a supplementary cathartic draught, or a proportionate quantity of castor oil, as directed for children.

Where the ascaris vermicularis is the leading type of the parasite, an enema of warm water, containing santonine in solution, will be found useful; some more warm water being injected into the rectum a few hours afterwards, in order to bring away the lingering drug and dead ascarides.

My experience of this drug extends only to its use as an anthelmintic, but it is largely employed by the French physicians in many spasmodic diseases, in which its good results are most probably due to the cessation of the reflex nervous action set up by the irritating presence of the worms on their consequent expulsion.—*Lancet, April* 2, 1859, *p.* 349.

52.—*Santonine as an Anthelmintic.* By Dr. JAMES MORE, Newton Stewart, Wigtownshire.—Looking over my notes, I find that in three cases—two children and an adult—the symptoms produced by santonine were those generally following the administration of an acrid poison. About half an hour after it had been taken excessive vomiting came on, accompanied by severe pain in the stomach and belly, and in one of the cases by profuse diarrhœa. After these symptoms had continued for some time, the patient complained of great weakness, giddiness, and intense thirst; and it was not till the second day that the stomach and bowels seemed free from irritation. In four other cases its action was still more peculiar. Shortly after taking a *moderate* dose, a woman informed me that she felt very much excited, and inclined to dance and laugh, She felt a fulness about the temples, and saw everything she looked at through a *yellow* light. A little girl had the same hysterical laughter; and everything she looked at was *green.* In the two remaining cases the same visual aberration was present, green and yellow being the prevailing colours. The symptoms in these latter cases were more or less present until the santonine was expelled from the stomach and bowels by a full dose of castor oil.

With the exception of the above, I have ever found this drug to be a safe and efficacious anthelmintic, and I have given it in about two hundred instances. It is difficult to account for the above peculiar action of santonine, unless we suppose that, mixing with the blood, it undergoes some similar chemical change to what it does when exposed to the influence of the atmosphere and light; for then we know it always assumes a yellowish colour. As opposed to this view, some continental physicians think that santonine does not enter the blood at all, but acts *directly*, as a specific poison to the parasite in the intestinal canal. It may act so, and yet in some circumstances it may also enter the blood; for in the class of poisons termed "acrid," as oxalic acid, hellebore, &c., we may have a local or remote action, according to the quantity taken. However, without pretending to explain this anomalous action of santonine, I simply draw attention to the plain facts, hoping some of your readers may bring forward similar ones and offer an explanation.—*Lancet, April* 16, 1859, *p.* 402.

53.—ON THE TREATMENT OF TAPEWORM BY KAMALA.

By Dr. Arthur Leared, Physician to the Great Northern Hospital.

[A previous article on this subject by Dr. Leared will be found at p. 107, vol. xxxviii. From the time when this last article was written, kamala has been largely employed at the Great Northern Hospital, and "the results have been apparently excellent," failures having been but seldom reported.]

Notwithstanding the many remedies in use for the destruction of other species of worms it has always appeared to me that no department of practice was more unsatisfactory in its results. Now I believe kamala acts with greater certainty against both thread and large round worms than any medicine we at present possess. If this were its only merit, it would not be a trifling one.

I have often remarked that large masses of tapeworm, including long pieces of the neck, may be expelled in a lifeless state; and yet fresh portions so soon reappear as to leave little doubt of their having been developed from the same head. This leads me to think that the vermicide action of all remedies is mainly effective against the bodies of tæniæ, and that when the head happens to be dislodged, it is not from loss of vitality, but that it is mechanically parted from the intestine by the weight of the lifeless body. As far then at least as the body is concerned kamala possesses a true vermicide power. It does not, as was supposed by Royle, act mechanically like tin and some other remedies. The tincture in sufficient doses appears to be as efficacious as the substance itself. I resolved to test the drug further by administering the resinous extract. This was obligingly prepared for me by Mr. D. Hanbury. He found that a fluid drachm of the tincture yielded four grains of extract. This was made into pills with one grain of kamala, and thus a remedy for tapeworm in a somewhat unusual form was afforded.

These pills have been tried in two cases.

Jan. 7, 1858. M. C., a healthy-looking young woman, was sent to me by my friend Mr. Wordsworth on account of tapeworm. She had observed joints with her motions for about a year preceding that time. There was an eczematous eruption on the chest and back, which had lately appeared. She had occasionally severe pain in the right side, and also pain of the back; no uneasiness of stomach or bowels; menstruation regular; had received no treatment for tapeworm. Ordered kamala ʒvi., one drachm to be taken every third hour. From some misapprehension she took one dose each morning for six days instead of as directed; said that large portions of worm came away after each dose, and brought with her a long piece passed on a previous day. The kamala caused a good deal of griping in about an hour after each time of taking it.

April 12. Came to say that about a week previously she had again noticed joints of the worm. The eczema had quite disappeared, but pain of right side recurred occasionally. She was now given six kamala pills, and they were all taken in one day at intervals of two hours. The bowels were not moved during the day, and no apparent effect was produced.

May 20. Called to say that she had been quite free from pain and otherwise well since taking the pills. I have not been able to determine whether the cure has been permanent or not. The other case occurred in the practice of Mr. Walker, of Bow-lane, Cheapside. At my suggestion the pills were given to a gentleman, but without any good effect. He affirmed that they produced pain in the back. Kamala itself was afterwards administered, and large portions of worm were passed; but I have lately ascertained from Mr. Walker that the worm has again made its appearance.

I would set down the relative merits of the remedies commonly employed for tapeworm as follows:—Kamala is decidedly superior to kousso, which is a less certain vermicide, and in my hands has been almost invariably productive of great disturbance of the stomach, and other unpleasant effects. My experience of pomegranate bark is limited, but I am disposed to place kamala above it. I am at present unable to decide between kamala, spirits of turpentine, and extract of of male fern, as vermicides. But against turpentine there are strong objections. It is of little use unless given in large doses, as from one or two fluid ounces. It then generally produces headache, giddiness, sickness, &c.; but still worse, it is not unattended with danger. I have been informed with great candour by a practitioner, in whose judgment and caution I have reason to feel confidence, of the following sad occurrence. A patient of his suffered from tapeworm, for the destruction of which a large dose of this medicine combined with castor-oil was administered. Unhappily, however, the death of the patient, after great suffering, from lumbar pain, strangury, and bloody urine, was the result. After death the bladder was found ulcerated.

I have frequently observed that tapeworm is sometimes easily expelled by a medicine that completely fails in other cases. This happens in turn with all the remedies mentioned, and makes them all of value. Thus in the case first referred to, all failed except kamala, which succeeded temporarily. A combination of two or three remedies is therefore desirable to insure a result at once certain and immediate. Dr. Adams informs me he has lately tried spirits of turpentine and t. kamala with excellent results. I am myself disposed to recommend t. kamala with oil of male-fern. But no unfailing remedy or plan of treatment is at present known.

I must observe in reference to the cases treated unsuccessfully with kamala by Dr. Peacock, and reported in the 'Medical Times and Gazette' of Nov. 18, 1858, that I consider the interval between the doses (a day) was too long. I am in the habit of ordering for adults ʒi. or more of the powder, or ʒii. of the tincture, to be taken every three hours, and in each case six doses, but with directions not to continue beyond the first day should it appear that the worm has been all expelled, or should other effects be severe. Sometimes the tincture gripes, and on that account I always combine with it tincture of hyoscyamus. It will also be generally desirable to administer a purgative. Kamala in substance usually purges and gripes. To prevent the latter effect, I am now in the habit of combining it with powdered hyoscyamus leaf.

There are many points in connexion with tapeworm which space at present forbids my entering upon. The unequal distribution of cases in reference to locality is a matter of great interest. Thus while in some parts of London cases are not rare, in the elevated district of Highgate they appear very infrequent. I am informed by Mr. Wetherell, who has had an extensive practice there during forty years, that he only remembers having had to treat a single case of tapeworm.

That swallowing meat containing cystecerci cellulosæ unkilled by cooking, produces tænia solium is sufficiently proved; but has it no other source? Küchenmeister tells us the butchers of Germany are particularly subject to tapeworm, in consequence of the cystecerci adhering to their hands, and becoming swallowed. From inquiries I have made there is no reason for supposing that their London brethren are similarly afflicted.

It would appear that the prevalence of intestinal worms in the same localities is variable. Dr. West, of Harpenden, Herts, writing to me of the large round worm says:—"All the medical men here remark the extreme frequency of such cases this year (1858)." As the ova of tænia solium are productive of cystecerci cellulosæ (measles of pork), it is of great importance not merely that pigs should be debarred from access to human fæces, but that the water used both by ourselves and the animals we consume should be as pure as possible. When sewage water becomes in any degree mixed with that used for drinking, great risk of cystic entozoa must be incurred.

I was greatly struck some time back with the apparent indestructibility of the ova of tænia solium. To insure their destruction, I placed some that I had been observing under the microscope in undiluted sulphuric acid. Next day, on again placing some of the same ova under the microscope, no material change in them was manifest.

[An interesting series of 18 cases by Dr. Adams, surgeon to the 22nd Regiment, is now related. Dr. Adams remarks :]

The result of treatment by tincture of kamala is by no means so satisfactory as I previously expected. In the great majority of the cases, the tænia were not altogether expelled, and in some the medicine seemed to have very little effect ; constipation was usually induced, and required castor-oil. The regimen of the patients and administration of the drug were carefully attended to. In every instance pains were taken to discover the head; but either in consequence of neglect on the part of the patient, or the broken-up state in which the worms were passed, it was very seldom found. Although in the first case a head was found, in a few weeks afterwards the patient was as bad as ever. The joints were generally dead when passed, but some lived for a short time afterwards.

From a somewhat extensive experience in the treatment of tapeworm, I am induced to conclude that kamala is not superior to male fern, kousso, turpentine, calomel, and jalap ; and while I acknowledge its value as a powerful anthelmintic, I think its virtues have been too much vaunted.

I have frequently given santonine for tænia lata in large doses either alone or in combination with calomel ; but it is very uncertain, and in many instances appears to have no effect whatever.—*Med. Times and Gazette, Jan.* 15, 1859, *p.* 57.

54.—ON THE DIGESTION OF NITROGENOUS FOOD BY THE PANCREAS.

By Dr. L. Corvisart.

General Propositions, forming the Summary of an Essay, published with the above title, and read before the Academy of Medicine at Paris, the first part in 1857, *and the second in February*, 1858.

Very little is known about the manner in which animal or nitrogenous food is digested in the *bowel;* and science has not advanced one step since the discovery of Purkinje and Pappenheim (1836) respecting the dissolving action which the pancreatic juice may exercise on such food—a discovery which has indeed remained almost unnoticed.

The physiological and experimental investigations on the *second digestion* (intestinal digestion,) of which I have given an account, (in the before-mentioned essay,) have led to the following important results :—These are twofold : One group, of a physiological and direct character, are deduced from actual experiments. The other, of a pathological and indirect nature, are deductions or corollaries, which, as it seems to me, throw some light on clinical medicine.

I. *Physiological Propositions.*—1. Nitrogenous food is digested both by the stomach and the pancreas.

2. The pancreas is, as it were, a supplementary organ, whose action, after copious meals, is added to that of the stomach.

3. Both digestions are of the same nature, as any article of food subjected to either is transformed into the self-same nutrimentive product (albuminose or peptone).

4. The pancreatic juice has peculiar reactions under the influence of heat or certain agents, which reaction *the gastric juice does not present.* As this difference in the juices is found when they are both charged with peptones, after digestion, it has erroneously been supposed that the peptones also differed. This pardonable error, being pointed out, will hardly again be fallen into.

5. When an article of nitrogenous food, or a portion of it, has undergone a thorough gastric digestion, the pancreatic juice no longer acts upon it, and does not transform it into another peptone.

6. The pancreatic juice is intended to act upon that part of albunoid substances which has left the stomach before being transformed into albuminose.

7. The amount of action of the pancreas may, in certain cases, be equal to that of the stomach.

8. If the mere quantity of secreted fluid were alone taken into account, the stomach might be looked upon as the more powerful, for the gastric juice is ten times more abundant than the pancreatic juice ; but the latter is, to make up the difference, ten times richer in ferment (pancreatine).

9. The gastric juice has the advantage of a prolonged contact and stirring with the food ; but the pancreatic juice has, on the other hand, the faculty of acting upon azotized aliments equally well, either in an alkaline, neutral, or acid state ; it also acts three times quicker than the gastric juice.

10. Everything is so disposed in the duodenum, that the pancreatic juice acts immediately it comes in contact with the food ; and everything is so arranged in the stomach that a large part of the food is transformed into peptone, the remaining part being, at the very least, so prepared as rapidly to undergo the pancreatic digestion.

11. This preparation, which varies according to the quality and quantity either of the food or the gastric juice, &c., consists sometimes in a simple imbibition, sometimes in a dissevering or an extreme division, and sometimes in a solution. Pancreatic digestion, being forcibly very rapid, is usefully assisted by this preparation, the stomach acting respecting the pancreas in the same manner as the teeth do respecting gastric digestion.

12. It is, however, to be noticed that the pancreatic juice is able to accomplish, unassisted, the digestion of food which has not been

subjected to that gastric preparation or division; in the same way as the gastric juice can digest food without extraneous help. Hence, pieces of albuminoid substances, being *directly* placed into the intestine in a raw state—that is to say, without any preparation, are perfectly and completely digested, the process being, however, somewhat slow. The pancreatic juice can, by its own unassisted energy, carry on the digestion of nitrogenous food, without requiring the adjunction either of the intestinal juice or the bile, to gain digestive properties. The digestion of azotized food, performed in glass jars over the water bath, by means of the pancreatic juice or isolated pancreatine, goes on in the same manner as in the duodenum.

13. When the gastric and pancreatic juices are separated, and act in succession, each performs its function completely, and the quantity of albuminose produced may thus be doubled.

14. But it is a remarkable fact, that when these two digestive ferments meet in a state of purity, the two digestions are no longer freely carried on. The mixture, far from doubling the produce, may reduce it to nought, for pepsine and pancreatine destroy each other under these non-physiological circumstances.

15. Nature, in the normal state, prevents this conflict by three distinct means—1stly, by the pylorus, which separates the two ferments; 2ndly, by the very gastric digestion through which pepsine exhausts and abolishes itself in the formation of peptone; 3rdly, by the bile, which destroys the activity of the gastric ferment, as has been shown by Pappenheim.

16. Bile does not precipitate the peptone produced by the influence of the stomach so as to destroy digestion and necessitate its being again begun. On the contrary, the bile itself is precipitated by the acid of the gastric juice or of the chyme.

17. The nature of the nitrogenous food has much to do with the quantity of peptone which the two successive digestions can produce for the requirements of the economy. I have thus found in my experiments, that whilst musculine and caseine yielded almost one ounce of perfect peptone, albumen, or gelatigenous textures, though given in the same quantity, yielded hardly half an ounce.

18. At the outset, gastric or pancreatic digestion destroys the most characteristic properties of the various albuminoid substances. It liquefies insoluble ones, deprives albumen of its coagulability, and caseine of its property of coagulating by rennet. It also deprives gelatine of its property of turning into jelly, and musculine of being precipitated by chloride of sodium, &c. In short, it transforms all the substances into albuminose and peptone.

The different kinds of albuminose, although their individual reactions are much less marked than those of the albuminoid substances whence they are derived, have, nevertheless, distinct characters.

19. The nature of peptone varies as the nitrogenous substances from which they are derived. This variety satisfies the different (plastic?) requirements of the economy.

20. The peptones which are most alike and most difficult to distinguish from each other, are, the albumen-peptone, musculine-peptone, and, strange to say, gelatine-peptone ; just as if the articles of food from which these peptones are derived were less different from each other than is generally supposed. Fibrine-peptone and caseine-peptone are more easily distinguished from each other, and from the substances above-named. From the slight differences existing between azotized articles of food, or peptones, there arises a kind of unstable equilibrium, favourable to the work of assimilation performed by the tissues of the body.

21. The generic character of peptones is, that they are always soluble in water, be the latter acid, neutral, or alkaline, which circumstance secures an easy circulation in the organism. Heat does not coagulate peptones, and hardly any of them are precipitated by acetate of lead. Besides, they resist insoluble metallic combinations a great deal better than nitrogenous articles of food.

22. Peptones form a genus, as well defined as the albuminoid genus. It is, however, evident, that by the progress of science, their nature will eventually be more exactly determined than can be done at the present period.

23. Some physiologists persist in the erroneous belief that the stomach merely swells or divides the food without dissolving it. How can they, however, withstand the testimony of the scales, which plainly show that, even where the weight of the food is considerable, every albuminoid article of food subjected to the action of the stomach is not merely divided, but dissolved, passes through the filter, and is absorbed by the membranes ?

24. Others have maintained that the gastric juice, acting on nitrogenous food, produces only gelatine. They, however, lose sight of the fact, that the characters which place gelatine in a peculiar albuminoid class, have never been discovered in the chyme after a digestion of fibrine, caseine, musculine, or albumine, even when the chyme was neutralized; and that, moreover, gelatine itself completely loses its specific characters, in consequence of undergoing digestion in the gastric juice.

25. Others, finally, resting on the ancient hypothesis, that the albumen of the blood is nothing but the digested matters themselves, maintain that the peptones are reduced to albumen, by losing their acidity—viz., by being neutralized. Such an error can hardly exist, except albumen and fibrine be alone taken into account, excluding all other aliments ; as an incomplete digestion of the albumen and fibrine may lead to confusion. Crude albumen, in fact, always partly escapes gastric digestion ; ill-digested fibrine is transformed into albumen only (caseiform); these two cases excepted, if experiments be made on the produce of concrete and washed albumen, of caseine, musculine, or gelatine, regularly digested by the stomach, no doubt can any longer be entertained. These gastric peptones never contain any albumen.

26. The peptones, either received or produced by the pancreatic juice, do not, any more than the latter, form any new albumen, and, whether they be primarily or consecutively acid, alkaline, or neutral, do not increase by an appreciable weight the coagulable albumen which the pancreatic juice, pure and without peptone, *normally contains.*

27. During the three hours which follow a meal, (when digestive solution, transformation, and absorption are not much advanced,) the blood of the vena portæ (compared to the venous blood generally) does not become charged with a noticeable quantity of nitrogenous matter through digestive absorption ; whilst, on the other hand, the elements of the blood globules and fibrine become changed into albumen (caseiform) by a commencement of digestion, either in the intestine or the water-bath, under the influence of the alkaline pancreatic juice.

28. Now, if it be considered that, during the first three hours of digestion—1stly, the pancreatic juice poured into the duodenum remains therein in a pure and active state ; 2ndly, that this juice can pass into the vena portæ, (for absorption by the mesenteric veins is not suspended); 3rdly, that this same juice can act in such an alkaline medium as the blood ;—if, moreover, it be considered that during those very three hours, a large portion of the globules and fibrine of the blood of the vena portæ is, weights remaining equal, transformed in that vein into albumen, (which is a commencement of transformation similar to that which they would have undergone in the intestine under the influence of this same pancreatic juice,) we can hardly refuse our assent to the hypothesis of *of a true intra-venous digestion,* which hypothesis I confidently put forward.

29. No actually differential character has ever been pointed out between the nitrogenous matters which go by the name of extractive, and the albuminose which is generated by gastric or pancreatic digestion. Now, it should be noticed that the lacteals, *the vena portæ, and the hepatic veins, which are its continuation,* or, in other words, the vessels which most directly receive the product of digestion,—are by far richer in extractive matter (albuminose) than the rest of the blood. It may, moreover, be noted that they are also richer in glucose.

30. The nutritive richness of the hepatic vessels (albuminose and glucose being contained in them) may be explained by the gastro-intestinal absorption, to which is energetically added prolonged intravenous digestion, although the liver has no share in the process.

II.—*Corollaries, vel Pathological Deductions.*—A. We may take it as almost certain that there exists (as regards albuminoid aliments) a duodenal dyspepsia, caused by the vitiation, insufficiency, or absence of the pancreatic juice, the symptoms of which appear only from the second or third hour of digestion, with a deeper-seated pain than is felt in gastric dyspepsia. (See Propositions 1, 2, 3, 6, 7.) The internal use of pancreatine is indicated in cases of pancreatic duodenal dyspepsia.

B. Secondary duodenal dyspepsia may be the result of an almost total absence of that kind of division which food, under the least favourable circumstances, undergoes by means of the gastric juice before that food has been transformed into peptone. Pancreatic digestion is then slower, just as gastric digestion is slower when the teeth have not duly performed their functions. This secondary pancreatic dyspepsia may be cured by the treatment suited to the primary gastric dyspepsia.

C. Another secondary duodenal dyspepsia may arise, either from an excess of gastric juice, or from a patency of the pylorus; for in these two individual cases the gastric juice reaches the duodenum in unfortunately retaining all its active properties, which latter are prejudicial to the action of the pancreatic juice. (See Propositions 13, 14, 15, and 16.)

D. A third duodenal dyspepsia may arise from deficient biliary secretion, this deficiency being followed by the same unpleasant effects as are noticed in the two preceding cases, on account of the non-destruction of the activity of the gastric juice in the duodenum.

E. A peculiar kind of dyspepsia, which might be called of the portal vein, or hepatic, may arise from the vitiation of the intravenous digestion.

F. Certain symptoms of dyspepsia, gastralgia, enteralgia, or hepatalgia, may erroneously be attributed to the stomach, the intestine, or the liver; these symptoms may simply be the result of the absorption of a too abundant, too active, or too irritating pancreatic juice by the vena portæ.

G. Bile, when it reaches the stomach, destroys the activity of the gastric juice within that organ, whether it penetrates the cavity pathologically through the pylorus or by the mouth and cardia. The knowledge of this fact may lead to the employment of bile to counteract the morbid superabundance of the gastric juice.

H. The economy is supplied with a variable weight of peptone, though the weight of different kinds of nitrogenous articles of food and digestive force remain the same, the weight of the peptones varying according to the kind of nitrogenous food. It is a great error in hygienics to esteem the trophic, or nourishing power of a nitrogenous article of food, simply by the amount of nitrogen it contains. The trophic, or alimentary standard of food is not so easily fixed.

I. When it is more urgent to allay pain and irritation about the digestive organs than to restore muscular energy, the food should consist of that kind of aliment which is most quickly and completely dissolved, whatever be the amount of peptone it yields.

J. But when it is more important rapidly to restore muscular force than to allay gastro-intestinal pain, we should, on the contrary, give such food which, the digestive force being the same, yields the greatest weight of peptone, though that food be likely to dissolve and digest slowly. (See Proposition 17.)

K. He who digests with one organ only, (stomach or pancreas,) is thereby put on half allowance as regards peptone; and he who eats only albumen or gelatinous tissue, (instead of caseine or musculine, which yield double as much peptone.) is also put upon half allowance; and with a normal and equal digestive force, is only half nourished. (See Proposition 17.)

In the two preceding cases, an over-activity either of the one organ (first case), or of both organs (second case), may occur, and extract from the food the full allowance of peptone. But we must not long trust this extreme functional exertion; for any persisting over-activity must sooner or later end in exhaustion.

L. We should not give for a long time one kind only of nitrogenous food, not only because one kind of azotized aliment is not capable of repairing the waste of the organism, but also because the same article of food given exclusively and continuously (for a week for instance) no longer excites gastric secretion, and no longer fully undergoes the digestive transformation.

M. Most of the peptones upon which I have made experiments, have the peculiarity of not being precipitated by neutral acetate of lead. Now, in all cases where the albuminoid matters of the urine happen to be of the albuminose kind, they remain in solution, in spite of the acetate of lead used to precipitate them. They therefore mask the sugar more effectually than all other ingredients of the urine when the potash and copper test is employed. The presence of sugar may thus be overlooked when it really exists in the urine.—*Lancet, Feb.* 26, 1859, *p.* 209.

55.—ON THE INFLUENCE OF MERCURIAL PREPARATIONS UPON THE SECRETION OF BILE.

By Dr. George Scott, formerly one of the Physicians to the British Hospital at Renkioi, Dardanelles.

[In a very interesting paper by Dr. Scott, including a series of experiments carefully made on a dog, all of which are detailed with great accuracy, it is shown that the common opinion about calomel increasing the secretion of bile is very probably erroneous. Dr. Scott concludes his elaborate paper as follows :]

All the above four experiments with calomel give one result, viz., *a diminution in the amount of fluid bile and bile-solids secreted after the administration of large doses of calomel.*

In the first two, particularly in the second, the decrease was no doubt due somewhat to the diminished quantity of food taken the day after the calomel was given; but that it was not all dependent upon this cause seems to be pretty clear,—1stly, from the fact of the bile of 19th June, the day following that in which food and milk were purposely withheld from the dog, having been considerably greater than the quantity secreted on the day following the 16th June, when also no food was taken, and when in addition 6 grains of calomel had been administered to the dog; and 2ndly, from the bile in the last experiment, when almost exactly the same amount of nourishment had been consumed *after* as *before* the exhibition of calomel, having been also very much diminished in quantity. In three of the above experiments, the bile-acids were also considerably *diminished* after the calomel; but in one, viz., the third experiment, they were *increased.* Why the bile acids should be increased in the latter case, and diminished in the other three, it must be confessed it is difficult to explain.

Although it would be rash to venture any decided opinion from the very small number of experiments above detailed, yet the few that were made, all point so much to one conclusion that, if they be confirmed by future and more varied trials, they would throw considerable doubt upon the generally received opinion that calomel in large and purgative doses increases the flow of bile. It may be urged that although calomel does not increase the secretion of bile in the dog, that is no reason why it may not do so in man; and that, even if mercury do not excite the liver to increased secretion in a healthy state of the organ, it may still do so in certain diseased conditions of the same. If the first objection were true, the same could be brought against the results of the experiments which have been made upon the lower animals to ascertain the action of poisons, or any other articles of the Materia Medica. With regard to the second objection, nothing analogous occurs in the action of drugs upon other organs; there is no medicine which diminishes the secretion of urine in the healthy state of the kidney, and increases the same in certain diseased conditions of the organ; there is no medicine which diminishes the amount of sweat in a healthy state of the skin, and acts as a diaphoretic in certain diseased conditions of the integument. Hence it seems difficult to suppose that anything which diminishes the flow of bile in a healthy condition of the liver, should increase the secretion of the same in a diseased state of that organ.

Whether it be the mere purgative effect of calomel which causes the diminution in the secretion of bile, or some specific action further experiments must decide. Of course, it must be understood that the above remarks apply only to cases where *purgative* doses of calomel have been given. Whether small and frequent doses of calomel continued for a length of time, so as to produce the specific action of mercury upon the system, really augment the biliary secretion, is matter for further experiment.

The above analyses were made in the laboratory of Dr. Lionel Beale, to whose great kindness I am indebted for the opportunity of performing these experiments.—*Archives of Med., No.* 3, *p.* 223.

DISEASES OF THE URINARY ORGANS.

56.—ON THE FORMS AND STAGES OF BRIGHT'S DISEASE OF THE KIDNEY.

By Dr. George Johnson, Physician to King's College Hospital.
(Read before the Royal Medical and Chirurgical Society.)

The author commenced by remarking that the question of the relationship which exists between the various conditions of the kidney which are commonly included under the term "Bright's Disease," is one of practical interest and importance. He considers that the theory of the *oneness* of Bright's disease is inconsistent with the clinical history and the morbid anatomy of the kidney in its various conditions. A large Bright's kidney usually remains large to the end, and a contracted Bright's kidney has not passed through a previous stage of enlargement. The chief points of distinction between the large white Bright's kidney and the contracted kidney are the following :—

1. The urine secreted by the large kidney is less abundant, of higher density, more constantly and copiously albuminous, and contains small waxy casts with or without oil, but not the granular casts which are thrown off from the tubes of the contracting kidney.

2. The minute anatomy of the two kidneys is different. In the contracting kidney, the gland cells become disintegrated and washed away, leaving the tubes denuded. In the large white kidney, the cells for the most part remain attached to the basement membrane, and undergo changes varying from a slight granular opacity to a complete oily degeneration, or they may at length become replaced by an albuminous or a fibrinous material which fills and obstructs the tubes.

3. Another important distinction between the two forms of disease consists in the relative frequency of dropsy as a symptom. There are few exceptions to the rule, that patients who die with a large Bright's kidney have had dropsy. In only two out of twenty-six fatal cases in the author's experience had dropsy been wanting at some period of the patient's history; whereas, of thirty-three fatal cases of contracted kidney, there had been dropsy in only fourteen, and in most of these cases the dropsy was very slight and partial.

The author remarked that if all the contracted Bright's kidneys have passed through a previous stage of enlargement it is difficult to understand how the majority of those patients who have reached this final stage of renal degeneration can escape the dropsy which, in a greater or less degree, troubles nearly all those who die in what is by some writers assumed to be an earlier stage of the same disease. The rule is, that a large Bright's kidney remains so to the end, and that a contracted kidney has not previously been enlarged. But there are exceptions to this rule. There are cases of Bright's disease in which the kidneys, having become enlarged, subsequently undergo a process of contraction in a greater or less degree. These cases, however, are so exceptional in many of their most important features, that they afford a remarkable confirmation of the doctrine, that in ordinary cases the contracted Bright's kidney is not an advanced stage of a previously enlarged kidney, but the result of a distinct series of morbid changes. The cases in which contraction of the kidney has followed upon enlargement may be divided into three classes:—1st. There are cases in which the weight and size of the kidney are found to be increased after death; yet in the cortical portion of the gland there are unquestionable indications of commencing atrophy and contraction. The author said he had met with six cases of this kind, and showed a drawing of the kidney from one case. The gland was large, pale, and waxy, but the cortical portion decidedly wasted. In the 2nd class of cases, the contraction of a pale, waxy kidney had proceeded farther, so that the size and weight were reduced below the average of the healthy gland. The 3rd class of cases are those in which a kidney, having become enlarged and *fatty*, has subsequently contracted; the fat granulations being still visible in the atrophied kidney. During a period of fourteen years the author has met with only five examples of contracted fat kidney. In two of these cases the period of transition from a large fat kidney to a contracting kidney was clearly indicated by the microscopic characters of the urine. The large waxy and granular casts were observed to take the place of the small waxy and oily casts which had been present during the earlier periods of the disease. One of these cases was under observation for a period of ten years. The chief points of distinction between a kidney which has been wasted by the chronic desquamative disease and one which has contracted after waxy enlargement were referred to, and illustrated by drawings of the two forms of disease.

Dr. Basham considered that the great merit of the paper consisted in its refutation of the pathological theory, which had emanated from Germany, of the oneness of Bright's disease. The author had endeavoured by his researches to prove that there were several morbid processes engaged in producing the different forms of renal disease that went by the name of "Bright." Those who had paid much attention to the disease must be well acquainted with the appearances described by Dr. Johnson, and aware of the distinctive characteristics that marked the large, flabby, white kidney from the granular, fatty, waxy, small kidney. He regretted that the author had not dwelt more particularly on the fact that the large white kidney was frequently associated with the acute form of the disease, whereas those instances of the affection that extended over many years were more frequently found connected with the fatty and waxy kidney.

Dr. Johnson agreed to some extent with Dr. Basham, that the large pale kidney was commonly associated with the acute form of the disease. Where chronic disease followed upon an acute attack, it was almost always a large, pale, flabby kidney. He did not know of an instance in which a very small contracted kidney commenced in an acute attack. It was not invariably the case, however, that large pale kidneys were present in acute cases. One of the cases which he had detailed, where the kidney was contracted, was of ten years' duration. If this patient had died at the end of nine years, he believed that they would have found a large pale kidney. In a considerable proportion of cases of chronic enlarged Bright's kidney the origin of the disease was latent, and there was no acute stage, so far as he could ascertain. One could not explain the difference in the size of the organ by the comparative duration of the cases. He had a patient under his care at the present time, in whom the kidney was enlarged and pale, the case having been of five years' duration.—*Lancet, April* 2, 1859, *p.* 342.

57.—*On some particular Forms of Renal Dropsy associated with Purulent Sediment in the Urine.* By Dr. W. R. Basham, Physician to the Westminster Hospital.—Idiopathic nephritis—that is, simple uncomplicated inflammation of the kidney—is, with our present knowledge, a doubtful form of disease. I have only known it as arising from mechanical injury. The urine in such a case is both purulent and bloody: the one often alternating with the other. The source of the pus is principally from the mucous surfaces of the calyces and pelvis, and occasionally from the tubular structures; but all parts are involved. Moreover, there is no dropsy.

In tubercle of the kidney, the urine is permanently purulent; but here also no dropsy is ever present, and the patient succumbs to the exhaustion consequent on the purulent drain. The morbid appearances of tubercle of the kidney are sufficiently characteristic. The mucous surface of the pelvis, the cup-shaped calyces, even the apices of the cones, as well as the substance of the kidney, are the seat of ulceration and abscess.

We may consider that when the symptoms of renal dropsy are associated with a purulent non-tubular sediment in the urine, in proportion to the amount of that purulent sediment will be the probability that the interstitial structures of the kidney are the source of the pus; and that, as this condition is consequent upon the destruction of the renal parenchyma, the prognosis must necessarily be unfavourable. On the other hand, if the amount of pus be inappreciable, visible or cognisable only by the microscope, even though tube casts be not present, it may be assumed that the purulent change is confined to the exudation contained within the tubes, and that this exudation not necessarily implicating every part of the kidney, but, as in pneumonia, being of limited extent, a recovery, under appropriate treatment, will follow, and the kidneys, like the lungs, eventually return to their natural and healthy function.—*Lancet, April* 9, 1859, *p.* 366.

58.—*On the value of Albuminuria as a Symptom of Kidney Disease.* By Dr. E. A. Parkes, University College Hospital, London.—[Dr. Parkes gives us a very interesting table of cases showing the per centage of the symptom, when temporary, and when permanent; so many cases now occur, in which albumen is temporarily present, that it has made some men doubt whether or not we can look upon it as a good criterion of kidney disease; when temporary it certainly is not, but when permanent it must still be regarded as a very decided symptom of Bright's disease.]

Permanent albuminuria indicated kidney disease in 32 out of 36 cases; and if the heart disease be excluded, it may be said that it indicated kidney disease invariably. Of late years the discovery of albuminuria in so many diseases has caused some scepticism as to the value of this symptom, but it would seem that the distinction of temporary and permanent albuminuria has not been drawn with sufficient care, and that if it be permanent, the significance of albuminuria is as great as it was supposed to be, by the older writers on morbus Brightii.

A distinction between the temporary and permanent albuminuria was often probable even at the first examination, from the usually much smaller amount of albumen in the former class of cases, with the exception, however, of the pneumonic, specific febrile, and acute renal cases, in which the quantity was often large.—*Med. Times and Gazette, Jan.* 1, 1859, *p.* 7.

59.—ON THE DETERMINATION OF THE PROPORTIONS OF URIC ACID AND UREA IN URINE, AS APPLICABLE TO PRACTICAL MEDICINE.

By Dr. William Seller.

[To the scientific practitioner it is frequently necessary to determine the amount, whether in excess or deficiency, of uric acid and urea, the two most important constituents of the urine.]

Determination of the proportion of Uric Acid in Urine. Hardly any chemical operation can be imagined of a more easy character than the method of late adopted to determine the proportion of uric acid in a specimen of urine. Mix four ounces of urine with half an ounce of the stronger muriatic acid of the shops; let the mixture stand for twenty-four hours; then pour it by successive portions into a cone of filtering paper, supported by a small glass funnel; when the filter dries, the uric acid may be shaken off in the form of a reddish powder, so that its amount may be easily estimated. Make the powder into a heap on a smooth flat surface, as on a plate of Wedgewood's Queen's ware, alongside of another heap of known quantity, say of one or two grains composed of uric acid previously obtained in like manner, and divide this known quantity with a spatula, as the druggist divides the sum of minute doses of powders in prescription, till a heap is obtained as near as possible in bulk to that heap the quantity of which we desire to determine. Here the known heap, once carefully weighed, is our standard, and is to be kept for use, as saving all the trouble of a nice balance, while it affords a result quite as near the truth as can be requisite in medical practice. For a more nice estimate, a grain of dry uric acid may be drawn into a line as uniform as possible of ten inches long, so that an inch of this line being divided again into ten portions, and one portion again into ten, each of the last portions will represent the thousandth part of a grain,—a degree of accuracy which few balances will equal.

There is, it is true, a surprising difference in the tint of the powders obtained in the manner above described from different specimens of urine, some being of a very light red, and others more or less dark, so that, occasionally, the granules almost suggest the appearance of a fine gunpowder. I have not been able to ascertain the precise circumstances under which this very dark powder is produced; but this peculiarity plainly marks itself out for scrutiny above, as it should seem, the other varieties of tint just referred to. That it is a morbid character, there is no reason to doubt. What is singular, it appears to be as nearly pure uric acid as the lighter coloured varieties of the powder; it gives at least, in the same very minute quantity, the proper succession of colours with the established form of test, namely, vivid red, when moistened on a slip of glass with nitric acid, and moderately heated over a gas flame; a beautiful pink, when the dry red spot is exposed to the vapour of ammonia; and a rich purple, when the pink spot is touched with a rod dipped in liquor potassæ, or in a strong solution of caustic soda; the whole colour disappearing on the further application of heat. One of the cases in which I observed this blackish colour in the uric acid, was one of anomalous ill health brought on, as I saw reason to think, by a long-continued course of erroneous diet. On dissolving this dark-coloured product in hot liquor potassæ, and adding muriatic acid, a small portion of uric acid nearly free from colour was obtained. The minuteness of the quantity of the powders usually obtained sufficient for distinct indications with the form of test just referred to, is enough of evidence, for the most part, of their degree of purity, the two or three granules taken up with a pin-point being in general all that is requisite,—a quantity which may be estimated at from the five-hundredth part to the thousandth part of a grain. It is seldom necessary, then, for medical purposes, to resort to the manipulation for purification by liquor potassæ and muriatic acid.

When a more nice examination is proposed, the filter should be made of tissue paper, from which, though a longer time is required, the powder more easily separates. In every case water, and where greater exactness is desired, distilled water should be run through the filter after the acid mixture is exhausted, if not for the sake of greater purity, at least in order that the filter may more readily dry. It is not in general necessary to filter the urine before the addition of the muriatic acid; and if it should seem requisite, when there is much mucus, it must be observed whether any portion of uric acid has remained on that filter, that it may be taken into account in the final estimate. Some desire the urine to be gently warmed before the addition of the acid; but the omission of this direction does not make much difference on the final result. The proportion of acid above directed is larger than is often recommended; but it has seemed to me that the larger quantity gives a more complete effect within twenty-four hours. I forbear to say anything on so obvious points as the necessity of ascertaining the whole quantity of urine passed by the patient in twenty-four hours, and the advantage of operating, whenever it is possible, on a portion of the entire amount collected in that period.

Determination of the proportion of Urea in Urine. To the portion of urine under examination a barytic solution is first added to remove the phosphates, the precipitate being separated by filtration. To a measured quantity of this prepared urine is then added, drop by drop, a solution of pernitrate of mercury, of known strength, by which a copious pure white precipitate is produced. Contained in this white precipitate, the urea falls down; and it is discovered when all the urea has been precipitated, because then the white matter becomes yellow on being mixed with a solution of carbonate of soda. Make with a glass rod several distinct patches of solution of carbonate of soda on a slip of glass, and as soon as the precipitate made in the prepared urine by the solution of pernitrate of mercury seems to fail, transfer a drop of the white matter with a glass rod to one of the patches of solution of carbonate of soda. If this patch becomes yellow, the experiment is finished, and the proportion of urea present can be estimated from the amount of solution of pernitrate of mercury employed. If the patch remain white, more of the solution of pernitrate of mercury is to be added, till a drop transferred with the glass rod to a patch of the solution of carbonate of soda renders it yellow. All that remains is to observe how much of the solution of pernitrate of mercury has been made use of, since the strength of that solution is so adjusted that, for every hundred parts by weight of that solution used, the separation of one part by weight of urea is indicated. The densities, however, of all the bodies actually concerned being but little different from that of water, there is no occasion to employ any other mode of estimate but that of measure. A slight error is introduced by the varying proportion of muriate of soda in the urine, but in experiments designed merely for medical use, that source of error may be neglected.

To return to the preliminaries for this striking experiment, the first step is the preparation of the urine. For this purpose, two parts by measure of a saturated solution of pure baryta are mixed with one part by measure of a saturated solution of nitrate of baryta, and of this mixture one measure is added to two measures of urine, the precipitate being separated by filtering paper.

The next step is the preparation of the solution of pernitrate of mercury, which is somewhat troublesome; but any trustworthy druggist may easily provide it by means of the following directions:—Pure mercury is required. That of the shops may, I believe, be rendered sufficiently pure by being digested for some days with dilute nitric acid in the cold, the dish being shallow in order to expose a large surface of the mercury: with some loss, it may be quickly purified by heating it for a few moments in a pretty strong nitric acid, and taking the residue, after being washed, for use. Of mercury so purified 1543 grains (as nearly as possible 100 grammes) are treated with five parts of nitric acid, of specific gravity 1425; the mixture is heated in the water-bath, and more nitric acid is added until red fumes cease to come over, and a drop of the solution is not rendered turbid by muriate of soda; the solution is then evaporated in the water-bath to the consistence of syrup, and distilled water added to make up 45 ounces troy, or 1400 cubic centimetres.

To prove that we have obtained a mercurial solution of the required strength, prepare a solution of pure urea containing two parts of urea in 100 parts of water. If 200 parts of our mercurial solution exactly precipitate the whole urea in 100 parts of this normal solution of urea (while the acid set free is removed by a little carbonate of soda), our mercurial solution is of the required strength.

A small quantity—for example, two drachms of urine—suffices for a pretty correct result with the foregoing test.

Numerous as are the alterations which the urine may undergo in disease, there can hardly be any which deserve to receive a complete investigation, prior to those in which the proportions of two substances so fully proved to be excretory as urea and uric acid are concerned. And how much such an investigation lies within the power of practical men, even in the busiest spheres, sufficiently appears in what has been said above. It should not be hastily assumed that there is a superabundance of labourers in this field. For as the rage of fashion is only to be kept up by novelty, it is too likely that when it is found, as must be the case, that striking discoveries do not follow so fast as its sanguine votaries anticipate, they will desert this field, long before its treasures are exhausted, to seek something that bulks more largely in the eye.—*Edinburgh Med. Journal, January* 1859, *p.* 591.

60.—*Notes on Pigment in the Urine.* By Dr. A. J. PAINE, Bengal Medical Service. (Indian Annals of Medical Science, July, 1855.)—Dr. Paine has made it a rule to examine the urine of his hospital patients with reference to the amount of pigmentary matter in it, and he arrives at the conclusion that it is invariably a test of the presence or absence of hepatic disease ; the intensity of the colour produced by heat and the slow addition of nitric acid, being in the exact ratio of the amount of disease in the liver. He has found the test of especial advantage in determining the diagnosis of hepatic from other forms of dyspepsia. Dr. Paine carefully distinguishes between the iridescence produced by nitric acid in urines which contain bile, and the more or less deep-red colour caused by the same acid after heating the liquid to be tested ; it is the latter to which the present paper is devoted. He establishes seven shades, varying from a pale sherry colour, the reaction of pale healthy urine with heat and nitric acid, to a colour which is so deep as not to allow the transmission of light. Five cases, with autopsies, are given ; other cases in which recovery resulted are also recorded by the author, who sums up the evidence, proving that excess of pigment in the urine is proof of liver disorder, thus—" In all the cases of organic disease of the organ, that have afforded opportunity of post-mortem inspection, the connexion has been established ; in a wide range of cases, where experience teaches us that functional disorder prevails, pigment is found ; in others, where structural disease is known to be present during life, it is found ; where it is assumed to be an indication, even in opposition to other evidence, and practice is based upon it, such practice is successful ; pigment does not occur under any circumstances which preclude hepatic affection ; and lastly, in functional disorder, the quantity of pigment varies from time to time, in the same manner as the state of the function may naturally be supposed to vary."—*Medico-Chirurg. Review, April*, 1859, *p.* 533.

SURGERY.

AFFECTIONS OF THE BONES AND JOINTS, AMPUTATIONS, &c.

61.—CLINICAL REMARKS ON EXCISION OF THE KNEE-JOINT.

By SAMUEL SOLLY, Esq., Surgeon to St. Thomas's Hospital.

[When this operation was re-introduced by Mr. Fergusson in 1830, the writer was incredulous as to its value; the facts, however, that have converted him to the belief that excision of the knee-joint is not merely admissible in many cases, but decidedly desirable, are—the time occupied in procuring a perfect cure by anchylosis, and even then the tendency to recurrence of the disease, and, lastly, the statistics already published, show that the operation is not so fatal as amputation of the thigh.]

With regard to the statistics of this operation, you will find some valuable information in a paper in No. II. of 'Guy's Hospital Reports,' p. 275, published April 1836, by Mr. Blackburn, who was a dresser of Mr. Key's. He says:—"The honour of originating the operation as it is now performed, of basing it on sound surgical principles, and of showing its applicability to several of the large articulations, is unquestionably due to Mr. Henry Park, of Liverpool." In a note, he says "I am the more anxious to make this statement, because Mr. Syme and M. Velpeau have thought right to treat very slightingly Mr. Park's merits. The pamphlet in which this gentleman proposes the operation evinces a candid, reflecting, and enterprising mind. The circumstance of his not having had the opportunity of carrying his ideas extensively into practice will weigh little with those who can appreciate the sound arguments by which the proposal is supported. The foresight which predicts the results of an untried measure evinces higher talent than the industry which collects together the evidence of experience. Mr. Park's honour as a man, and skill as a surgeon, are still proverbial in the scene of his former labours." "This gentleman," continues Mr. Blackburn, "after long reflection and many experiments, was led to believe the operation admissible, and in 1781 performed it on the knee-joint with entire success."

I must not, however, be tempted to quote more from Mr. Blackburn, though I shall avail myself of his labours. The poor fellow is no more, and, judging from this paper, his death has been a loss to the profession, while the intellect it displays and the knowledge it contains reflect great credit on the school of Guy's Hospital, where he was educated.

Mr. Park, of Liverpool, with that modesty which so often attends real talent, did not publish his case directly to the profession, but wrote a letter to Perceval Pott, of St. Bartholomew's—a name well known to you, if from nothing else, from the term "Pott's fracture." This letter was subsequently published by Dr. James Jeffrey, Professor of Anatomy and Surgery in the University of Glasgow, in 1806, with cases by Moreau, of Paris.

His patient was a strong Scotch sailor, aged thirty-three, having suffered for ten years from disease of the knee-joint. The leg was partially anchylosed at a right angle. The slightest attempt to move the leg gave him exquisite pain. "This poor man's sufferings, which had been some time great, were daily increasing, and his health declining in such a degree, that he began to beg to have the limb taken off." This Mr. Park declined, at the same time proposing excision; though, as he says, "I rather wished to make the first attempt on the elbow." Mr. Park excised the knee-joint on the 2nd of July, 1781. "The quantity of bone was somewhat, though not much, more than two inches of the femur, and of the tibia rather more than one inch, which were but just enough to enable me to bring the leg into a right line with the thigh, the previous contraction of the flexor muscles being such as to keep the two sawn ends of bone in contact."

The case was not managed after the operation in the simple way that is pursued in the present day, and a good deal of constitutional disturbance ensued, with a foul, sloughy sore. Yet, notwithstanding a severe fall, which occurred about seven months after the operation, by which the union was disturbed, he was able to walk about and bear the whole weight of his body on this limb at the end of twelve months from the date of the operation. "This man," says Mr. Park, "afterwards made several voyages to sea, in which he was able to go aloft with considerable agility, and to perform all the duties of a seaman. He was twice shipwrecked, and suffered from hardships, without feeling any farther complaint in that limb, and was at last unfortunately drowned by the overturning of a flat in the Mersey."

Mr. Park's second case was unsuccessful, but it was not well selected. The publication of Mr. Park's cases elicited the fact that about twenty years previously, Mr. Filkin, of Northwich, had performed this operation with perfect success; but, unlike surgeons of the present day, he hid his light under a bushel. In this case, his modesty or indolence, as regards writing, deprived the profession of a valuable fact. Now, let this be a lesson to you, to keep records of all your more important cases when you get into practice. I do not want you to rush into the other extreme, of publishing every trivial case that occurs to you, without ascertaining whether there is any real novelty in it or not.

M. Moreau, of Paris, was the first surgeon who followed Mr. Park's example. His cases were published by his son. He operated on the 17th of September, 1792. "At the end of the third month the consolidation of the bones was such that I left the limb at liberty in bed; the patient moved it about at his pleasure," says this celebrated surgeon, but afterwards is obliged to record that his patient was carried off by dysentery; very fairly adding, "This unfortunate accident deprived me of the pleasure of enjoying the fruits of my cure; but I remained convinced of the utility of the operation, and persuaded of the propriety and necessity of performing it in similar cases. I looked upon my patient as cured, for I had no relapse to dread. M. Moreau's second case was unsuccessful; his third recovered with a useful limb.

From Mr. Blackburn, to whose paper I have already referred, I learn that in 1809, Mülder operated unsuccessfully. This brings us to cases 8 and 9, operated on by Crampton, of Dublin, one only being successful. Cases 10 and 11 were Mr. Syme's; one was successful the other fatal. On all these cases Mr. Blackburn makes the following remarks:—"Facts like these require little comment. Of eleven operations, five have entirely failed; one partially, and in the remaining five, though life was preserved, the recoveries were long and tedious. With whatever truth the results of the fatal cases may be assigned to accidental causes, it must be remembered that these accidental causes apply equally to any other operation; and in forming an estimate, it would be unjust to make an exception to the rule which classes all cases not followed by recovery as instances of failure. The excision of the knee-joint is, therefore, a measure against which experience strongly militates."

The operation was now abandoned by the profession for twenty years. The observations of Mr. Blackburn, I have no doubt, made the London surgeons hesitate; and the fact that Mr. Syme, who took up so warmly excision of the elbow-joint, objected to excision in the knee, of course carried great weight with the profession. Fortunately for humanity, and the onward progress of conservative surgery, Mr. Fergusson had the courage to undertake it in 1850. He was quickly followed by Mr. Jones, of Jersey, Mr. Page, of Carlisle, and Mr. Mackenzie. I must not detain you by further statistical details but refer you to the excellent monograph of Mr Butcher, of Dublin; the records of cases in his own practice by Mr. Humphry, of Cambridge, in the 'Medico-Chirurgical Transactions,' and Mr. Price's scattered observations in 'The Lancet.' In Mr. Butcher's first table of cases occurring between July, 1850, and December, 1854, there are thirty-one, of which only five proved fatal. In his next table, from December, 1854, to December, 1856, he records fifty-one cases, with only nine deaths. This proportion of deaths compared very favourably with those from amputations of the thigh, which, as far as our records go to the present time, are seldom less than one in three.

Mr. Humphry, surgeon to Addenbrooke Hospital, Cambridge, has published, in the 'Medico-Chirurgical Transactions' for 1858, an account of thirteen cases, in which he excised the knee-joint. The whole paper is very instructive, and well worthy perusal. Of these thirteen cases, one died, as I believe, from the effect of previous disease; in four, amputation was necessary; in the remaining eight, a useful limb was preserved.

At this hospital—St. Thomas's—we are indebted to our senior surgeon, Mr. South, for its introduction into our operating-theatre. The success which attended him has encouraged others to follow his example. He has had six cases, with only one death following immediately upon the operation. This was in a female, who lived fourteen days. In another case death followed, but as the patient lived ten months, the operation cannot be considered the cause. The particulars of these cases will be published at some future time by Mr. South himself. Mr. Clark has also had two cases, the first eminently successful, and the second progressing favourably. I have had three cases; the first was not well selected, as the poor fellow died of rapid phthisis. As far as the operation was concerned, it was encouraging. He experienced immediate relief, and from a state of great suffering was removed to one of comparative ease. The wound was nearly healed at the time of his death, and anchylosis partly completed.

Case 2. Edward P., aged six, of strumous diathesis, admitted Jan. 15th, 1859, with ulceration of the cartilages of the knee-joint, and partial dislocation backwards of the tibia. He has been ill for four years, and during that period was in the hospital three times. He attributes his first illness to an injury to the joint. About a fortnight after the injury he says that the knee began to swell, and he was then admitted to the hospital. An abscess formed and burst, and he partially recovered. He left the hospital, and the leg then became contracted. The abscess formed again twice afterwards, and on each occasion he was admitted to the hospital. On this his last admission, there was a large sinus on the outer aspect, which discharged pus. An abscess again formed, and on Tuesday, Feb. 9th, I excised the knee-joint. (Prior to this period his health had been much improved by good diet and cod-liver oil.) On cutting into the joint, there was found to be a very firm and partially bony anchylosis, which I was obliged to saw through before I could remove the articular ends of the bones. Owing to the contraction of the tendons, it was found necessary to remove about one inch of femur before the leg could be straightened; this was, however, done, and the leg was then placed on a M'Intyre splint made with only a narrow sliding bar at the back of the knee-joint, so that it could be dressed without removing the splint. The flap was fastened by means of sutures and adhesive plaster. Ordered five minims of the tincture of opium, as occasion may require; also, eggs, two ounces of wine, a chop, and a pint of porter.

He slept well for four nights with the sedative draught, after which it was not found necessary to continue it.

Feb. 10th. The wound is clean; there has been no hæmorrhage; appetite good; bowels open.

11th. All irritation has subsided; his tongue is clean; bowels open; pulse regular; and he is not in pain.

12th. The wound beginning to suppurate; the sutures were removed in the evening of this day, and warm water dressing applied.

14th. Wound healthy, suppurating, and causes no pain; the bandaging was renewed to-day. His appetite, as usual, is good, and he is quite cheerful.

16th. Improving rapidly; the wound is going on well. In fact, the boy has not had a single bad sympton, and on March 1st the wound had nearly healed, and there was considerable bony union.

March 14th. Wound healed all but one little spot; enjoys perfect health.

Case 3. Joseph R., aged eight, admitted Jan. 8th, 1859 with ulceration of the cartilages of the knee-joint, and also an abscess within the joint. He states that eleven months before his admission he received an injury to the knee. It then began to swell; but no abscess formed at this time. He could not walk, nor bear any percussion on the heel. The leg remained in a semi-flexed position. On admission there was an abscess in the joint pointing at the inner and lower part, which opened. He, however, got worse and hectic: the knee was excessively painful; his countenance indicated great suffering; his expression was very anxious, and he screamed if you even approached his leg with your hand. Several consultations were held as to the course to be adopted; and, on March 5th, I excised the joint with the approbation of my colleagues. There was extensive ulceration of the cartilages, and large quantities of false membrane in the joint. The abscess had burrowed up the thigh, but the bone was not bare, nor was there any evidence of necrosis. I therefore proceeded with the operation. The leg was placed on a M'Intyre modified splint, as in the above case of Edward P., and the wound closed by sutures and rollers. Warm-water dressing was then applied. Ordered, wine, four ounces; porter, a pint; eggs, chop, cod-liver oil; and tincture of opium, ten minims, immediately.

March 6th. Slept well; tongue clean; no pain. The wound looks quiet. There has been no hæmorrhage. Bowels open; pulse regular; appetite good; has lost all hectic symptoms.

7th. Progressing favourably. The cod-liver oil causes sickness and diarrhœa, and cannot be taken. Otherwise the boy is quite well. He has a good appetite, and is in no pain.

8th. Going on well. Eats, drinks, and sleeps well.

10th. Progressing favourably; the wound suppurating; no pain.

11th. Sutures were taken out to day; the wound has healed nearly all round.

13th. Progressing most favourably; in fact, he lost all his bad symptoms at the time of the operation, and has never had a recurrence of them since.

15th. Quite well in health; the wound nearly healed.

Such, then, gentlemen, is the progress of these cases up to the present time. It is now especially that I feel called upon to direct your attention to this important subject. These cases are in progress, and you may watch them for yourselves. Nothing, up to the present time, can be more satisfactory, but we cannot consider them as cured. "There is many a slip between the cup and the lip," and it may yet be my duty to report an unfavourable termination, though at present all is *couleur de rose*, and I have no reason to anticipate an unfavourable result.

In the second case, that of Joseph R., I was afraid of the condition of the thigh bone, from the burrowing of the abscess under the rectus, and took care to obtain the permission of the father of the child, who is a porter at the Great Northern Railway, to convert my operation into an amputation of the thigh, if I found in the progress of it that such a proceeding was necessary.

With regard to the manner in which this operation should be performed, I must say a few words. First and foremost, take care and have your splint prepared beforehand,—an iron splint, with a thigh-piece to reach just to the edge of the buttock, fitting well, when padded, to the posterior surface of the thigh, with an open space behind the knee-joint; then fitting, again, well to the calf, with another open space for the heel, to rest on a piece of linen drawn tight across the opening; and a foot-piece which can be shifted. All the padding must be covered with some thin waterproof material, such as gutta percha. Several of the early cases were, I believe, lost from want of attention to the proper and careful adaptation of the limb in the first instance.

The bones should not press much upon each other, but touch gently; sufficiently in apposition to induce bony union, but not sufficient to produce constitutional irritation. Mr. Syme, who has been one of the great opponents of this operation, lost his second case apparently from want of attention to these rules. On the sixth day after the operation, he was obliged to cut away two inches more of the femur, and his patient died on the eighth.

Your first incision is to extend in a semilunar direction right across the front of the joint, from one condyle to the other, just below the patella. The curve must be slight; the commencing points parallel, and well over the condyles. This incision should be made firmly, boldly, and quickly, right into the joint. This flap is to be dissected upwards with the patella, thus completely exposing the surface of the condyles. In some cases this is easily done; not so in others, where anchylosis has commenced. The crucial ligaments, if not destroyed, are now exposed, and what remains must be divided carefully on a director, otherwise your knife might slip further than you intended, and, to your great horror, enter the popliteal artery and vein. If your first incision were well carried back on to the condyles, their articulating surfaces are now completely exposed for the use of the saw. This saw should be Butcher's; I mean Butcher of Dublin, not a butcher's saw, as the theatre porter seems to think, from the instrument he has given me. This saw of Mr. Butcher's is one of the most perfect tools I ever worked with. The safest plan is to commence from behind, and to carry it forward over the rounded extremity of the femur till you reach the edge of its articulating surface in front. In this way, and by the assistance of this saw, you remove only a thin slice, including all the diseased articulating cartilages, but without shortening the bone to an inconvenient extent. In like manner remove a slice from the head of the tibia, though of course here your cut will be simply flat, at right angles to the shaft of the bone. This part of the operation is very greatly facilitated by your assistant forcibly flexing the leg, and pushing the head of the tibia well upwards and forwards. The patella must next engage your attention. The articulating surface, whether diseased or not, must be removed by the saw, unless you decide to remove the whole bone, which latter proceeding is strongly recommended by some operators of great experience. Hitherto I have left it, but in my next operation I shall remove it. I have not had any proof that it retards the healing process, but I am told by those who have operated more frequently than I have that it does so, and that it does not add to the strength of the limb. Having completed your saw cuts, examine the cut surfaces, and observe carefully whether you have removed all the diseased bone, and whether you have opened a sequestral or carious cavity. In the former case, I need hardly say, you must remove the sequestrum; and in the latter, you may use the gouge, to scoop out any carious bone that the saw has left behind. I have advised your only removing a *thin* slice from both femur and tibia to prevent shortening of the limb. This is the rule; the exception occurs when, from long-continued contraction of the flexors, you have a difficulty in straightening the limb, in which case you must again have recourse to the saw, as the bones should not be pressed *forcibly* against each other. I have seen no inconvenience from slight pressure.

The operation seldom gives rise to much hæmorrhage. One or two arteries are all that usually require ligature. But all that bleed freely must be secured, as secondary hæmorrhage has, in more cases than one, been apparently the indirect cause of a fatal result. Four or five sutures are usually required. Roll the thigh to the splint with a firm linen roller as far as the knee; leave this uncovered; roll the leg in like manner below, and the foot to the foot-piece. Use no side splints.

All this must be done before your patient is removed from the operating table; and, if done without dawdling—I do not mean with indecent haste—it will be concluded almost before your patient has recovered from the chloroform.

There is no point which has struck me more forcibly in these operations than the great relief from pain which, after a few hours' smarting, they afford to the patient. I usually give a dose of opium about three hours after its completion, and frequently no more is required. Mr. Humphry, of Cambridge, objects to the use of opiates after operations in general. My own experience in a London hospital is decidedly in favour of their use.

I think that all of you who have watched my last two cases must have been struck with the vast improvement in the countenances of the two little fellows since their diseased joints have been cut out. There is no longer that anxious and distressing expression which was always present previously. Their faces are now bright and cheerful, the colour is returning to their cheeks, and, instead of treating me to tears, they always welcome me with a smile.

In conclusion, let me recommend you, to give this important subject your most careful consideration. Watch for yourselves all the cases that occur in this hospital. Take the opportunity of seeing all you can in other hospitals; for I am sure that you will invariably, in the present day, meet with the courtesy which I hope you all show to strangers when they visit us. Do not be guided in your selection of this operation by the *ipse dixit* of any man, but take all the evidence, all the practical evidence, which is afforded *pro* and *con.* by those who have had the most experience.—*Lancet, April* 2, 1859, *p.* 335.

62.—ON EXCISION OF THE KNEE-JOINT.

By G. M. HUMPHRY, Esq., Surgeon to Addenbrooke's Hospital, Cambridge.

[Of 13 cases operated on by the author, one died; in four, amputation was necessary; these all finally recovered; and in each of the remaining eight a useful limb was preserved, or there was every prospect of that result.]

The operation of excision of the knee appears from the narrative of these cases not to be attended with much danger to life. This may be inferred, not merely from the fact that death followed in only one case, and in that case, which was a peculiar one, was attributable rather to the shock of the severe previous disease than to the effects of the operation, but still more to the fact that in no one of the cases was the operation productive of much constitutional disturbance. In the greater number there was scarcely any constitutional disturbance to be observed. Scarcely any acceleration of the pulse or other febrile symptom is noted to have occurred in the few days which succeeded the operation; and none of the alarming sequences, such as erysipelas, inflammation of internal organs, suppuration in distant parts, or diffuse suppuration near the wound, which are dreaded as the probable effects of the more severe operations, were even threatened in any one of these cases.

The limb in each case after recovery has been a very strong and useful member. The femur and tibia becoming firmly united into one bone, and the slight shortening caused by the loss of their articular surfaces is an advantage in walking, rendering the gait of the patient easier than when a mere anchylosis of the knee exists. There is no liability to recurrence of disease; and I think patients who have recovered from excision of the knee must be very thankful that they have not undergone amputation.

Of the cases which are of common occurrence, excision of the knee may be performed with best prospect of success: first, in those where the acute stages of inflammation have been passed through, and the joint is left crippled, contracted, and useless; and secondly, in those where the disease, originating in the synovial membrane, has invaded the cartilages and bones, and has caused such alteration in all or any of these structures as to preclude the hope of the preservation of a useful joint.

Where there is great thickening of the synovial membrane, with the probability of tuberculous deposit or scrofulous transformation of its substance, or where there is much disease of the bones, the results of the operation are less likely to be favourable.

In performing the operation of excision of the knee, I prefer the crucial to the H-shaped external incision, because it is more easily and quickly made, because it affords an equal facility in the performance of the other stages of the operation with a less amount of division of skin, and because the edges of the wound are more readily brought again into apposition. I think it better to remove the patella, because, if left, it can serve no good purpose when the tibia and femur have become united together, and it must offer some impediment to the escape of purulent and other collections that may take place between the cut ends of the bones: moreover, it is very often diseased, and its removal facilitates the performance of the operation. The ends of the bones should not be uncovered more than is absolutely necessary for the purpose of removing the requisite amount of their articular surfaces. It is better to divide some of the soft parts with the saw than to dissect too closely to the bones.

I find the common amputating saw the most convenient instrument, and divide the bones from before backwards.

In young persons care should be taken to make the section through the epiphyses of the tibia and femur, so that a thin layer of the epiphysis, with the cartilaginous medium which unites it with the shaft, be left upon each bone. If this precaution be taken, there is every reason to believe that the limb will keep pace in its growth with the opposite member. It is most probable, that in the instances in which a want of proper growth has been observed in the limb after recovery from excision, the sections were made through the shafts, and the entire epiphyses, with the thin cartilaginous matrix lying between them and the shafts, were removed. Hence the shafts of the two bones became directly united together, and, the provision for elongation at one end of each having been taken away, the limb henceforth was unable to grow at the same rate as its fellow.

It is the more necessary to be very careful about this point, because the epiphyses, not increasing in depth in anything like the same proportion as the shafts during growth, are, after a few years, relatively very shallow, especially that of the upper end of the tibia; and unless the surgeon bear this fact in mind, he is very likely to make the section through the shafts (of one or both bones), when he imagines that he is dividing the epiphyses.—*Medico-Chirurgical Transactions*, 1858.

63.—ON RESECTION OF THE KNEE-JOINT.

By Richard G. H. Butcher, Esq., Surgeon to Mercer's Hospital, &c., Dublin.

[The following is the third successful case of excision of the knee-joint performed by Mr. Butcher. It is interesting not only in itself, but as affording additional evidence of the value of this special operation.]

Mary Carey, aged 15 years, admitted into Mercer's Hospital on the 4th of January, 1858. *History.*—The infliction of the injury, which was supposed to originate the disease of the knee-joint in this case, dates so far back as seven years. When the child was only eight years of age, she was thrown down by a playfellow, when returning from school, and her right knee was violently wrenched, and bruised against the curbstone of the pathway. She was supported home, and remained confined to bed and to the house for several days after. The recovery from this primary injury was slow and unsatisfactory, though the usual remedies—stuping, leeching, &c.—were employed; slow, because several days passed by with but little amendment; unsatisfactory, because a lingering pain and uneasiness, upon very trivial exertion, settled in the part. Months passed over, and years elapsed, and upon various occasions accessions of suffering were aroused, and were again quieted and subdued by surgical interference, both when in her attendance as an external patient at several hospitals, and more particularly while an internal recipient of their advantages. Still the disease progressed up to the date which I have recorded of her admission into Mercer's Hospital under my care. A glance at the patient told the sad tale, that a corroding cause was hastily sapping the springs of life. A few words, a cursory examination, pointed to the source. The very attitude of the patient betokened the part. As she sat upon the bed, the thigh was flexed, the leg could not be extended, but the foot rested steadily upon its sole, and guardedly did the sufferer, with both attenuated hands, steady it in this position, so as to prevent any wabbling or lateral motion. The outline of the extremity, as it thus rested, showed not only the wasted condition of the member, but likewise very clearly the distorted condition of the knee-joint. The projecting condyles of the femur were tilted upwards; while it was equally apparent that the tibia had receded, or, in other words, was drawn backwards into the popliteal space. The natural contour of the joint was lost; it was squared in front; and this arose from the puffed out and thickened synovial membrane at either side of the ligamentum patellæ. The distortion of the limb was rendered greater from the fact that where the tibia passed backwards, it was, together with the foot, rotated outwards. There were no sinuses or breach of the integuments surrounding the joint; neither was there much discoloration at any point. The extreme rotation of the leg outwards, the displacement of it backwards, pointed to that condition of the interior of the joint which permitted so extensively such misapplication of the articular surfaces of the bones—the total disintegration of its fibrous connexions, check ligaments, &c. On the slightest manipulation this state of parts was confirmed, for the leg could be moved in one direction, and the thigh in another, each being grasped by the right and left hand of the surgeon. An antero-posterior motion of one bone upon the other could likewise be demonstrated by altering the forces. None of these efforts could be even attempted without the greatest apprehension, as depicted in the terror of the patient; and a realization of the extent of such motion could not be effected without loud and prolonged screams of suffering. Resulting from such an examination, the grating of the carious bones one upon the other afforded unmistakeable evidence of the wide-spread and destructive implication of the articular surfaces. The popliteal space was filled by the displaced tibia, but far lower, and beneath, projected the strained hamstrings, tense, firm, and unyielding, rigorously preserving their spastic contraction. There was full evidence, too, of the synovial membrane of the walls of the joint having undergone total change: it was thickened, elastic, puffy at either lateral boundary of the patella, giving an indistinct sense of fluctuation, most deceptive as to the presence of matter, but sufficiently characterised by a peculiar resiliency, at once recognisable from suppurative accumulations by the educated touch. The prominence of the outer wall considerably exceeded that of the inner, and over this locality, too, the tenderness upon pressure was most manifest. Consequent upon the presence of this very extensive local change, the health of the creature was greatly broken up; pain, in a subdued form, was never absent for many months, and at some times was of the most excruciating nature; as described by the patient, "often a boring, burning pain made her scream out in distress." Her sufferings were always increased by any motion of the parts, and the repeated startings, and spasms, and cramps of the entire limb occasioned watchful nights, unwearied restlessness, and apprehension, with, frequently for successive hours, the total absence of sleep. Healthy digestion was entirely interfered with; the appetite gone; there was great emaciation present and a bewildered look of excitement and fear was stamped upon the countenance: age, far beyond the years of the child, was stereotyped there. Irritation had done its worst, and hectic followed upon its ravages, marked by an accelerated and rapid circulation, frequent attacks of diarrhœa, chills and burning, and profuse sweating. These reduced the sufferer to that condition which compelled her friends to bring her to the hospital, and willingly submit her to any mode of treatment that might be considered requisite to save her life. In this state, then, she was admitted under my care, and certainly no combination of symptoms could have presented a more unpromising result.

Upon instituting the most careful investigation of every fact in relation with the case, at the same time making the most cautious examination of the diseased joint, as to extent of bone disease, the implication of parts around, &c., and above all, the condition of vital organs, as far as in my power lay, I came to this decision—the propriety of excising the joint. There were no sinuses, there was no breach of surface by which the aid of the probe could be brought into requisition. The inference as to the propriety of the measure was arrived at from the combined local and constitutional evidence already alluded to.

On the 11th of January I excised the joint, adopting the H incision; quickly the soft parts were divided and reflected, and cautiously they were freed from the bones behind. The ligamentous structures within the joint, the cartilages of incrustation of the three bones, were entirely removed, and the contiguous surfaces of the bones most extensively destroyed. The condyles of the femur were hollowed out and eaten away to about an inch in extent, while the surface of the tibia was also deeply excavated, corresponding to each condyle, the intervening part being irregularly removed; the patella was also deeply carious, hence I removed it at once from the upper flap. The diseased extremity of the femur was cut with the saw invented by myself, and the section made from behind forwards; and so likewise the unhealthy surface of the tibia. The section of the femur revealed a beautifully healthy aspect, while the section of the tibia showed a softened irregular patch, about the size of a shilling, with a vascular fringe running round its confines, and separating it from the healthy bone outside. This appearance occasioned me to cut off another slice from the tibia, somewhat more than a quarter of an inch in thickness, and the section exposed a perfectly healthy condition, the normal arrangement of the bone. In all, there were about three-quarters of an inch or a little more of the tibia removed, and an inch and a half of the femur. The divided blood-vessels were small; no ligatures were required; and I at once placed the limb in the extended position, resting upon its posterior surface in the apparatus which bears my name. Let it be borne in mind, that previous to the operation the leg was considerably flexed, and the hamstrings rigidly contracted. This condition offered serious opposition to the required posture at first, but by gentle, steady, and gradually increased force, they were compelled to yield. Now, in the adjustment of the bones, there is one practical point which I have not before alluded to, neither is it noticed, so far as I am aware, by any writer on this subject; namely, the caution that is requisite, when straightening the limb, *to guard against any portion of the soft parts behind projecting forwards, and thus interposing between the bones.* Such an occurrence took place in this instance, during my first efforts to get the limb into a horizontal posture, but I perceived and rectified it at once; however, it might be easily overlooked, and I have no doubt would interfere in a very material manner with the firm union of the bones, or their growth into each other—a consummation so ardently sought for in these cases, Now this untoward circumstance may be guarded against by the following manœuvre: namely, to adjust accurately, while the leg is yet flexed, the posterior margin of the cut surfaces of the tibia and femur, and while the sharp edge of one rests upon that of the other, the tibia and femur are gently forced backwards, until the opposed surfaces rest fairly against each other. During this manipulation, then, the bones are pressed up firmly against each other, as well as with an equal force backwards. By this precaution the interposition of any softened structure will be effectually prevented. After this manner, then, the bones were fairly applied to each other, and afterwards the flaps laid down. They were brought together throughout the transverse incision by a few points of the interrupted suture, while some folds of lint were laid in the lateral ones, the object being two-fold: first, to prevent any immediate flow of blood; and secondly, at a later period, to permit a free escape from the part, so that purulent matter should not be pent up; the front splint was laid down, and each side of the box was then lifted, and an additional compress of lint placed over the wound at either side, so that an even, equable support was given, maintained. During this entire adjustment, from first to last, the leg was pressed up against the thigh: and, to secure it in this position, the foot-board slid into the grooves for its reception was most efficient, steadying the foot also at a right angle with the leg. An additional pad, wedge-shaped, was placed at the outer ankle, and projecting upwards, so as to maintain the foot in a straight line, and prevent any drooping outwards or eversion. The straps were then buckled round the box, and the patient, still under the influence of chloroform, removed carefully to bed. She, however, quickly awoke from her sleep, quite unaware that the operation had been performed.

[The patient went on well, with the exception of the formation of two large abscesses on the posterior part of the joint and thigh;

these were opened, and did well, but in the early part of September she was attacked with erysipelas of a most serious character, which was prevalent in the next ward. The limb became intensely swollen and painful. All bandages and splints had to be removed, "and yet so efficiently had nature done her work, assisted by the science and art of surgery, that the connexion between the thigh and leg remained a permanent bond, a rigid union." The last report towards the end October is, that the "limb is beautifully straight, stiff and rigid at the knee." Its use is not attended with the least pain.—*Dublin Quarterly Journal, Feb.* 1859, *p.* 5.

64.—WOUND OF THE KNEE-JOINT.

(Under the care of W. Coulson, Esq., Senior Surgeon to St. Mary's Hospital.)

When a joint is wounded without exposure of its interior, we have clear evidence of penetration when synovia (in the form of small oily globules) escapes from the aperture. If the injured joint happens to be large and important, such as the knee, the amount of the mischief at once becomes apparent, more especially if the wound should be very large, and the articulation too extensively opened to permit of union by the first intention. Amputation is the ultimate resource left to the surgeon in by far the great majority of cases, although we are free to admit that recoveries do sometimes take place, even when such a joint as the knee is seriously injured. We well remember some striking instances in M. Jobert's wards at the Hospital St. Louis, after the revolution of June, 1848, in Paris. Three of these were gunshot wounds of the knee-joint. In one, the ball traversed the articulation from before backwards; a cure was obtained without anchylosis, or a single untoward symptom. The same good result ensued in a second case, wherein the ball passed from behind forwards, the knee being bent when wounded. In a third case, the ball became lodged in the knee-joint, producing violent inflammation, and also the formation of an abscess at the side of the articulation, through which the ball was afterwards extracted; a cure ensued, but with anchylosis. These and many other recorded cases show us that, if circumstances are favourable, we may sometimes look for a good result, not only the saving of the patient's limb, but the prevention of anchylosis. This latter, however, did not occur in the case which we place upon record to-day. The cure was mainly attributable to the use of cold irrigation, continued for six days, until suppuration had ensued, when by making suitable openings to get rid of the matter, the opposed surfaces of the joint became united by fibrous tissue. The employment of cold irrigation has long been in vogue amongst our London hospital surgeons; and we remember to have seen it used in Paris, in 1848, by M. Baudens, at the Military Hospital of the Val de Grâce, and by M. Geraldès, at the Hospital des Cliniques.

The wound, in Mr. Coulson's patient, was three inches and a half long, and freely exposed the interior of the joint, the synovia flowing from it. When last we saw the girl, she was going on extremely well, without a bad symptom; and we hope the good results which have followed from the use of cold irrigation in Mr. Coulson's hands. will be the means of leading other surgeons to try it in similar dangerous cases, for it is a very powerful agent in keeping down active inflammation.

For the notes of the following case we are indebted to Mr. A. G. Lawrence, house-surgeon to the hospital:

Emily H., aged sixteen, was admitted into hospital on the 9th November, 1858, with a severe injury extending into the knee-joint. While washing a skylight overlooking a shop, her foot slipped, and she fell through into the shop, her knee coming in contact with an iron bar used for stamping embroidery work. The height from which she fell was about twenty feet, and the edge of the iron bar, being somewhat sharp, inflicted a wound three inches in length, and of a semicircular form, half an inch below the lower margin of the patella, dividing the skin and ligamentum patellæ, and running in a direction upwards and inwards to the knee-joint, so laying the joint open, the cartilage of the tibia being *in situ*. Three small arteries were divided, and when admitted she had lost a quantity of blood. The vessels continued bleeding, and were consequently immediately tied. Synovia ran from the joint, and could be easily recognised on the surface of the blood. The vessels being secured, the wound was well washed, and the margins brought together by four sutures, strapping being placed between each, so as to secure and bring the margins in nearer apposition. The leg was placed in a M'Intyre's splint, on an inclined plane, and firmly fixed, so as to prevent the slightest motion, both from the ankle up to the knee, and from above the knee up the thigh, thereby giving room for the synovial membrane to swell without any pressure whatsoever. A cradle was placed over this, and to the top of it a bottle was fixed, filled with water; through the cork of this, four pieces of thick worsted hung, the lower ends of which were brought in contact with the knee-joint at different places, and so arranged that every half minute some drops of water would fall on the joint, thoroughly irrigating it, but giving each drop time to evaporate before another fell, keeping the knee in a state of coolness which could not be attained in any other way; the caloric being so rapidly abstracted during the evaporation of the water, that any elevation of temperature was prevented. She complained of much pain, which was increased when the leg was moved, but after it was fixed she felt much easier. To have three grains of calomel and half a grain of opium three times a-day, and broth diet.

Nov. 12th. The joint is rather painful when pressed upon, but quite cool and not at all swollen. There has been no shivering nor accumulation of serum in the joint. The margins of the wound are slightly puffed. The strapping and sutures were removed this morning. The irrigation is continued assiduously, day and night.

15th. The irrigation has been continued without interruption since last report; the ligatures have come away; the joint is quite cool; there is no pain whatever, unless when pressed upon, and there seems to be no constitutional disturbance; some small amount of pus has formed about the external wound. The irrigation to be discontinued, and a light bread poultice applied to the joint; omit the powders; to take an ounce of saline mixture three times a-day.

18th. The limb has ached since the poultice has been applied; it is more painful when touched; some small quantity of matter has formed in the joint, and is discharging at each corner of the external wound. Continue poultice.

21st. The limb is less painful; the matter is still discharging, and seems to bag on the inner side; the external wound looks healthy, and has nearly healed up. Mr. Lawrence, the house-surgeon, introduced a probe through the external wound into the joint, and has made a counter-opening to let the matter out.

27th. There is no discharge at all from the inner side of the joint; the opening made, and the wound on the same side, have both healed up; the discharge from the outer side of the joint still continues, and seems to collect below; another counter-opening has been made on this side of it; there is much less pain on pressure than before, and her health does not suffer at all.

Dec. 8th. Has continued well up to the present time; the whole of the original wound has healed up; the discharge from the counter-opening was slight for a few days, but it has entirely stopped now, and the wound healed up; there is hardly any tenderness on pressure; the limb is still kept on the inclined plane, and has not been moved since her admission; her general health is excellent, and appetite good.

28th. The limb has been by degrees brought into the straight position; there is scarcely any pain whatever on pressure; the cicatrix of the wound is getting smaller, and the joint is exactly the same size as that in the other leg; health is very good. All treatment has been left off, and she is to have the limb put up in the starch bandage, with side splints of layers of linen starched, and kept so for some time.—*Lancet, Jan.* 8, 1859, *p.* 31.

65.—*Gutta Percha Moulded Splints in Diseased Hip-Joints.*—On a recent visit to the Royal Orthopædic Hospital, we witnessed a plan of treatment, adopted by Mr. Brodhurst, in cases of chronic disease of the hip-joint, which deserves some notice, especially as the results on the whole seem so very satisfactory. It consists in applying gutta percha, when softened by heat, over the affected hip and thigh, moulding it to the shape of that part of the body, at whatever angle the thigh may be flexed at the time, and then applying a bandage over all. From the quiescent condition of the parts thus affected, together with the support afforded to the limb, the diseased joint becomes improved, and the thigh gradually assumes its normal position; and as this is gained, so is the gutta percha re-applied a few times, until a cure is effected. We saw several cases of chronic disease of the hip-joint undergoing this method of treatment; amongst them several children, in whom the disease had been existing some time, and who were at first in such an extremely irritable condition that their limbs could scarcely be touched without eliciting screams. They have now attained their natural position; the patients can walk, and bear pressure on the limbs; their general health has improved, and they can bear a close examination.

The advantages, therefore, of gutta percha are—that it is convenient of application; it is much cheaper than the instruments in use, with cog-wheels, &c.; it prevents motion effectually; it keeps the parts at perfect rest, and by acting as a support, at the same time assists nature in perfecting a cure. This is also facilitated by attention to the general health.

A few weeks back we counted in one ward alone at St. Bartholomew's Hospital, five cases of diseased hip-joint, in boys from six to eleven years of age, under Mr. M'Whinnie's care, who at the time had charge of Mr. Lloyd's patients. All were being treated by rest and attention to the general health.

[Perfect quietude of the limb can only be obtained in this way. The usual method of adapting a splint to the diseased joint has hitherto been to soak thick leather in water till soft enough to be moulded to the parts. Gutta percha is decidedly preferable, it can be made to fit better, and is easily done by the surgeon himself, instead of by the surgical instrument-maker. We have found that a good addition is to *line* the gutta percha loosely with wash leather. This makes it cleaner and more comfortable.]—*Lancet, Oct.* 30, 1858, *p.* 451.

66.—*Diagnosis of Synovitis.* By Thomas Bryant, Esq., Assistant Surgeon, and Surgical Registrar to Guy's Hospital.—[We extract the following from a clinical lecture delivered at the Hospital. In an early condition the diagnosis of disease of the joint itself is not difficult, but as the disease advances, sooner or later all the structures become involved, and the diagnosis is practically immaterial, if not impossible.]

In *inflammatory affections of the synovial membrane*, the diagnosis is one of no difficulty. As soon as fluid is effused, which is at an early period, the synovial sac becomes distended, and, as a consequence, yields, and bulges out at the points where it meets with but slight obstruction. These points are always at the margins of the bones which form the joint: in the knee, at the side of the patella and its ligament; at the ankle, around the malleoli; in the elbow, about the olecranon process; and in the ball-and-socket joints it is universal. The points of bone, instead of being prominent and well marked, appear sunk, and the fluctuation of fluid may easily be detected; the integument is free in these cases, and it is rare that it becomes complicated with the inflammation. The joint will, as a rule, be found in a semi-flexed position, this position allowing the greatest distension of the synovial sac. These points alone are enough to diagnose effusion into the synovial cavities, the constitutional symptoms and rapidity of progress marking the acute, subacute, or chronic disease.—*Lancet, Feb.* 5, 1859, *p.* 130.

67.—ON HYSTERICAL AFFECTIONS OF THE JOINTS.

By Frederick C. Skey, Esq., F.R.S., Surgeon to St. Bartholomew's Hospital.

[We give the following cases of Mr. Skey, as illustrating those hysterical or neuralgic affections which so often puzzle the young surgeon. Mr. Skey's comments are very good. Let the young surgeon remember that in a great number of knee-joint cases in young women, hysteria has more or less to do with them.]

Mary W., (Lucas Ward, Bed No. 5,) a delicate girl, aged nineteen, admitted Jan. 6th, with an affection of the left knee. When I first saw her, she was lying slightly over on her left side, the affected limb being everted so as to be laid on its outer side, with the knee bent at about 130°. The position was peculiar and well worthy of remark. The disease appeared spontaneously, after an evening's active exertion in dancing, but without the occurrence of any form of external violence. The affected knee was slightly swollen, and the temperature somewhat higher than that of the other. On applying my hand to it, the girl shrank, and expressed much suffering by a loud exclamation. Any attempt to change the position of the limb was resisted with more than ordinary earnestness. The slightest indication of a manipulative examination was attended by a corresponding extension of both her hands in the attitude of fear and resistance. The girl was pale, and her pulse weak; her general appearance presented that of a delicate person occupying a position somewhat above the level of the ordinary inmates of an hospital; catamenia regular. I ordered her a strong opiate liniment to the joint, consisting of two drachms of fluid extract of opium to six drachms of compound soap liniment, to be rubbed in at night, and the joint to be rolled in flannel. She was ordered four ounces of wine, a meat diet, and to take twice daily an ounce of the compound iron mixture, to which was added one drachm of the tincture of valerian.

On the fourth day from that of her admission, the local pain was reduced, and the girl exhibited less apprehension on the limb being examined; but it was yet highly sensitive, and its position unaltered. On the eighth day her condition was a good deal improved; she had lost the extreme sensibility of the limb, and had a healthier expression. Mr. Batten, my very efficient house-surgeon, had succeeded in placing the limb over a pillow, so as to rest the now extended limb on the heel. In the course of another fortnight, the girl could bear, without complaint, any kind of examination of the knee, which was reduced in size and in temperature to those of the opposite joint. She was now ordered the ammonio-tartrate of iron in beer, and the leg was rolled in flannel.

On visiting the ward on the twenty-first day after this patient's admission, I observed one of the younger patients, a girl of about seventeen years of age, in tears. On inquiring the cause, she made no verbal reply, but looked round instinctively towards the bed of the person whose case I am detailing. A second case then presented itself of recent tears in another girl, for which no adequate cause was assigned. On arriving at Bed No. 5 I found I had reached the focus and exciting cause of all this female flutter and lachrymation; for, on further inquiry, I ascertained the ward had been the scene for several days of repeated exhibitions of infectious hysteria. The disease extended itself to four or five of the younger patients, one of whom was seized with an attack at the very inopportune season of my visit; but the sudden application of a large jug of cold water restored her self-command; while the threat of instant expulsion from the hospital exercised a remarkably tranquilizing influence over the participators in her weakness. The subject of the above case is now nearly convalescent.

Eliza J., aged twenty-two, was admitted into Treasurers Ward in April last with an affection of the knee, which incapacitated her for movement of any kind on the affected limb. The joint was scarcely perceptibly swollen, yet she could not bear the most superficial examination by the hand without an expression of pain quite disproportionate to the apparent amount of disease. The temperature of the joint was slightly, but not much, increased. The only explanation obtainable from the girl's statement referred the injury to a fall six weeks prior to her admission, and three weeks before the first appearance and even the suspicion of disease. During the interval of the first three weeks she "thought the joint felt occasionally more stiff than usual." This girl had a somewhat florid complexion; she had a weak pulse, and, as almost a matter of course, had cold feet and severe headaches. Both sides of the joint bore marks of previous treatment in the form of pretty active scarifications. It appeared that blood had been taken from the joint by cupping on two occasions, to the extent, as nearly as I could learn, of about twelve ounces; and a blister of some magnitude had been applied on its front surface. From these remedies I could not ascertain that any benefit had been derived to the affected knee, and she thought, on the whole, her attacks of headache had been more frequent and severe. Her bowels were habitually constipated. I ordered her the local application, for three or four consecutive nights, of a liniment composed of two drachms of the fluid extract of opium to an ounce of compound soap liniment, and the joint to be rolled with flannel; twice a day, a draught of ammonia and valerian; full diet, with a pint of porter daily. The local application was continued, with intervals, for eight or nine days, with much relief, and without return of pain. At the expiration of a fortnight, the medicine was changed to eight-grain doses of ferro-citrate of quinine, and she left the hospital in five weeks convalescent.

Elizabeth M., aged nineteen, was admitted into Lucas Ward. Bed No. 6, in May last, complaining of severe pain in the dorsal region. She was a stout but unhealthy-looking girl. She reports that her pain has existed at irregular intervals for the last year; that it is more severe before her catamenial periods; it occupies the middle of the back, and along the region of the spine, which is so extremely tender that the slightest pressure of the hand causes great suffering. This pain appeared, on examination, confined to the sixth, seventh, and eighth dorsal vertebræ. She could bear forcible pressure on any other of the vertebræ, but not on these. On touching them, she screamed with pain, so extreme was the sensitiveness of this locality; although, as I had foretold, she bore very considerable pressure by the hand, carefully and cunningly applied, the instant her attention was distracted from her complaint to some subject alien from it. I ordered her the strong opiate liniment above-mentioned; valerian and ammonia for a week, followed by full doses of the sulphates of iron and quinine; meat diet, with a pint of porter. She left the hospital in five weeks, quite convalescent.

To the following case I believe I have previously alluded, but it will bear repetition:—Anne M——, aged twenty-two, was admitted into Treasurers Ward, (Bed No. 8) in the spring of last year. She has been confined to her bed for twelve months, and was sent up from her parish near Bedford. During twelve months she had been totally deprived of motor power in the left leg, and during ten months in the left arm. The two extremities lay on the bed perfectly motionless and paralytic. Indeed, her case was reported to me as one of hopeless and incurable palsy. There was something strange in the girl's aspect, and in the total absence of motor power extending to the toes. A truly paralytic limb is rarely so dead as these limbs were; we can often obtain some slight manifestation of volition, even though in the slightest motion of one or more of the toes. In this case there was absolutely none detectible by the eye. I suspected it to be a case of hysteria, and ordered her valerian and ammonia in full doses after the first three days; meat diet and porter. In four days movement on volition was perceptible in all the toes and in the hand. In a fortnight she could move her arm and leg slowly in all directions. In one month she walked on crutches about the ward, and in six weeks she left the hospital convalescent.

Remarks.—Let us go back to the first case, that of Mary W. We see a delicate girl suffering acute pain in the knee-joint, without local mischief adequate to its intensity. On looking to the cause, we find nothing available beyond the exercise of an evening's dancing. So long as the joint remains at rest or unmolested, the pain is tolerable; touch it with the finger, and it becomes intolerable. There is no sign of local disease beyond a slight swelling of the joint; the temperature of the limb and of the region—on which we rely with so much confidence in real disease—is almost unchanged. What is this evil in its true nature? Pain; pain not the concomitant of inflammation, but pain *per se.* If the disease consist in pain, surely it is based on some condition foreign to health, in which the nervous system is involved, and not the vascular. We have abundant examples of what we term hyperæmia without pain, and we have at other times, with equal certainty, pain without increased vascularity. In various forms of neuralgia, such as tic douloureux, we have excessive sensibility of a sensory nerve. It may be lighted up in an instant by a touch of the finger, or a current of cold air, or other similar causes. It subsides as rapidly, leaving the part totally free from pain for days or weeks. Yet the eye can detect nothing abnormal in appearance. Surely this condition refers to the nerves, not to the vessels of the affected part. As we have general affections of the vascular system, as well as local, so we have morbid conditions of the nervous system both general and local. The disease is local in tic, it is general in hysteria. In the cases I have above cited, it is both local and general. The presence of severe pain, whether in the knee or in the back, so long as it does not involve the vascular system—which would be indicated by effusion into the joint, great increase of heat, and moderate, not excessive, pain—is only an evidence of general derangement of the nervous system. In such forms of diseased action, we shall no more obtain relief from suffering by local depletion than we should be warranted in subjecting a young and delicate lady to copious bleeding from the arm because she had sunk to the ground in an hysteric fit. When pain prevails unaccompanied by vascular action—that is, when it stands alone, it is often more severe than when, in alliance with heat and swelling, it gives token of true inflammation. The pain in such examples is peculiarly severe, but only so long as the mind dwells upon it. Distract the mind's attention, by directing the thoughts in another channel, and it is remarkable how almost instantaneously the pain subsides. We have, perhaps, in the history of mankind, no manifestation of the intimate relation between mind and body more remarkable than this: the entire and almost sudden suspension of severe pain through the curative agency of a train of healthy thought.

With respect to the frequency of such diseases, I would go so far as to say: in three-fourths of diseases of the knee-joint occurring in young women from fifteen to twenty-five, you will find, more or less palpably, the traces of hysteria; for even the presence of real disease of the joint is no guarantee or safeguard against the existence of some symptoms really attributable to hysteria.

I have never witnessed a more striking example of this remarkable malady than in the case I have just quoted of factitious paralysis. The girl is reported as suffering from confirmed palsy of the leg and arm. Palsy is attributed by most authorities either to some lesion, or to effusion of fluid on the membranes of the brain or spinal cord. But surely it is not very reasonable to attribute the absorption of such fluid, and the removal of all disease from the nervous centres, to the agents employed in the treatment of this girl. And if so, under what division is her case to be classed but under that of hysteria? Let us, then, in future, be more watchful lest, in other examples even if possible less palpable than this, we be not betrayed into the adoption of a principle, or the employment of an agent, unsuitable, if not prejudicial, to the recovery of our patient.

If we observe these cases critically, whatever our bias in favour of diseases of the vascular system, we shall detect some outlying symptom, some eccentric feature, that will carry us out of the direct channel of ordinary disease, and shake our faith in the efficacy of leeches, and of other local depletive agents. Local sedatives, applied in the form of the strong solutions of opium, appear to me valuable; and I advise you to employ them freely. As a sedative agent, the common tincture of opium is of little avail. You should resort at once to the extract of opium, which, in the semi-fluid form, is a valuable agent in most varieties of local pain of the neuralgic kind.

One word on the subject of these curious examples of infectious hysteria. To observe these phenomena on a large scale, we must resort to a large room, or the ward of an hospital or infirmary where women are congregated. If these women are young, one or two persons of more than usual sensibility are sufficient to infect the entire ward.

I remember, while a student, having the temporary charge of a ward of Mr. Abernethy, occupied at the time by a number of young women from eighteen to twenty-five years of age. Out of twelve patients, ten were afflicted at the same time with violent hysteria. The services of every available sister, nurse, and hospital beadle were called into requisition to control their violence and restore order in the ward. The disease spread from bed to bed irregularly till, at one moment, nearly every patient in the ward succumbed to its influence. The violent struggles, and the remarkable muscular power displayed by some of these girls, while under the influence of the attack, required the co-operation of two or three persons to restrain them. To the best of my recollection, this curious scene of riot and disorder prevailed for two hours, and then subsided into calm. In the example I have alluded to as having recently occurred, the disease was only less extensive because the ward was chiefly occupied by women whose more advanced age placed them beyond its influence. It is readily controlled by stern authority. Kindness or gentle remonstrance is fatal. You cannot approach the disease by reason or argument. You must excite some powerful emotion in the patient's mind, to which this morbid condition will readily succumb if you can succeed in rousing it. Fear is the most effective agent; but, in the case of a vain woman, the gentler remedy of ridicule will suffice. If you bring an attack to a sudden termination, you must operate through the mind, not through the body. These people are remarkably insensible to physical pain, but their ears are open to the powerful agency of ridicule. I remember the case of a young lady, in whose mind a sense of indignation was impressed by certain offensively-cutting remarks that moved her vanity to the utmost. She ceased to sob, the colour rushed to her cheeks, and she burst into a flood of natural tears. The disease had passed away. In all similar examples of hysteria, whether taken singly or congregated in sympathetic groups, kindness is thrown away; at least, it may tell for what it is worth, but it does not lead in the direction of cure. You will do far better if you can produce a shock on the mind, if you excite any powerful mental emotion, and still more efficiently if a painful one.—*Lancet, March* 12, 1859, *p.* 257.

68.—ON THE HYSTERIC CONDITION OF JOINTS.

By —— Barwell, Esq.

[These affections are not uncommon, especially among the higher classes. There is sometimes considerable difficulty in distinguishing an hysterical from a real joint disease. The following diagnosis of Mr. Barwell's is good:]

Although in a malady so Protean as hysteria no short description of invariable symptoms can be given, yet two peculiarities may be fixed upon as especially characteristic; and these are, the absence of the ordinary signs of inflammation and "anomaly." One may be inclined to add to these symptoms, the hysteric condition, yet though such condition is present in many cases, yet it is in others quite absent, or so slightly marked as hardly to exceed the ordinary mobility of the feminine character. When hysteria breaks out in the paroxysm, it is usually sated by that manifestation, and produces no such serious effects as a pseudo-malady; indeed, the imitative tendency of hysteria is often checked by a regular fit, and a simulated disease may occasionally thus end; but, in other cases, the imitation may continue uninterrupted by any other hysteric symptom, and we are then thrown for our diagnosis upon a purely local investigation. Let us first take the knee as the more frequently affected joint. The pain is, in some cases, so severe as to make the patient hold her leg constantly semi-flexed and immovable; in other cases it is so slight that the patient, though complaining, walks about. The pain is not in direct, but rather in inverse ratio with any other hysterical symptom. It may be increased at the menstrual period. It is generally referred to a spot on either side of the ligamentum patellæ, and is increased on the slightest touch at this spot, but especially if a piece of the subcutaneous fat here situated be pinched. In other cases, the tenderness is spread over a large space, but is always superficial. The articulating surfaces are not tender; they may be forced together by pressing the foot upward, without producing pain. In the severer cases, when the knee is kept fixed, the surgeon, if he attempt to change its position, will feel the muscles of the limb thrown into strong action. A striking characteristic is the absence of heat about the affected joint—it feels quite as cool, and sometimes, the author is inclined to think, even cooler than the other. Swelling, in any marked degree, is absent in cases of knee-joint disease; if measurements be taken, the swelling will be found greater than is ordinarily supposed; but the hysteric knee, when not inflamed by irritant treatment, is seldom swollen, and never more than about three quarters of an inch. The swelling is tegumentary merely; the healthy parts may be felt beneath.

When the disease affects the hip, it is, by a skilful eye, even more easily detected. When the patient is lying down, the limb is drawn up, the knee bent, and there is great superficial tenderness over the whole haunch, hip, and thigh, but no pain on pressing the articular surfaces together from the heel upwards; if the joint be not moved, there is no greater heat on that side than on the other. If the surgeon, by perseverance, get his patient to stand, he will observe a marked twisting of the pelvis, in part an imitation, in part exaggeration, of the position assumed in hip disease. The glutei may be felt in strong action, and the nates, instead of being flat, on that side are protuberant. Swelling is hardly to be measured at the hip, because it is surrounded by muscles whose greater or less action must alter the dimensions of the part. That creaking of certain joints which sometimes comes on with puberty may gradually become more fixed, till it settle down into hysteric joint diseases; therefore there sometimes accompanies this malady a parchment-like crepitation, which is easily distinguished from the crepitus of rheumatic arthritis. Besides these signs, it must be remarked that an hysteric patient has not the worn aspect of one whose cartilages are ulcerating.

Now the peculiarities of hysteric disease impress upon the local complaint a quality of unreality which requires some examination. It is not to be supposed that these patients willingly deceive their medical attendant, nor that the pain complained of has no real existence; but it is not produced by a local condition—the malady is centric, not excentric. Hysteria has, perhaps, been too much regarded as the *bête noire* of medicine, connected with an obscure and sometimes undiscoverable menstrual disorder; and therefore to be treated with iron, and emmenagogues, and such-like medicines. Yet, in truth, though the disease may be originally produced by the circumstances and conditions of woman's life, it soon becomes independent of uterine action or inaction; it becomes a neuropathy which can be called forth by the feelings and imaginings of the patient, who is more or less aware of the power she exercises over her condition, and, believing her sufferings real, is yet delighted to direct them by such mental acts. Thus the malady must be treated on other principles than such as would follow a mere uterine pathology. Great harm is done by the indiscriminate use of steel, ethers, aloes, &c., which are often given when a lower diet and more exercise would much better cure the disease. If, however, the above view be correct, the treatment must rather be directed to the cerebral condition which produces the neuralgia-like pain, and which has the faculty of swaying the disease by its own emotional state; for it must be evident from that view, that if this emotional state can itself be denominated, the disease will be governed with it; if the patient's faith can be so far mastered as that she shall fully expect to be cured by any given proceeding at a certain time, she *will* be cured by that method at the time specified. The author has tried several means whereby the patient's confidence having been sufficiently gained, he could call away their attention from the part affected *to some distant spot*, in which a disorder working its own cure had been artificially produced. Of all such means, a seton seems, in most instances the best; this is to be made of a single ligature (silk) set in at a distance from the affected joint, and embracing only a small portion of skin. The placing of a seton is sufficiently painful and like a surgical operation to attract strongly the patient's attention, and yet not so much so as to be cruel or greatly repugnant to her feelings. Another advantage is, that besides a distinct beginning, it has a certain end, which the patient is to watch; and if she believe, as can be well managed, that as the seton works through the skin she will get better, and when it comes quite away she will be well, the result is certain to follow her belief. Mr. Barwell read several cases which he had thus treated, and quoted in support a case in which Mr. Hancock, by giving a patient thus affected chloroform, and performing a mock operation, had produced a cure. He observed, in conclusion, that the most essential points were—to be quite certain in the diagnosis, to master the confidence of the patients, and to place the seton or other agent at a sufficient distance from the part affected.

Mr. BRYANT remarked that heat and swelling were occasionally present in hysterical affections of the joints. Indeed, in neuralgic affections generally, increase of heat and size were common symptoms. In the treatment of hysterical cases, he relied more upon constitutional than local remedies. The indication was clearly to remedy any deficiency in the state of the general health. The usual plan of treatment in Guy's Hospital was the administration of the fœtid gums, He objected to the employment of setons, except in very extreme cases, and mentioned an instance in which the patient died from pyæmi, in consequence of the introduction of a seton. He objected altogether to the use of any sham operation, as unnecessary, and liable to be followed by mischief.—*Lancet, Nov.* 20, 1858, *p.* 527.

69.—ON THE CAUSE OF THE DIFFICULTY IN REDUCING DISLOCATIONS OF THE THUMB.

By G. M. Humphry, Esq., Surgeon to Addenbrooke's Hospital, Cambridge.

When the first joint is dislocated, which almost always takes place from the phalanx being bent forcibly backwards, the sesamoid bones are carried back with the phalanx and become placed behind the head of the metacarpal bone, which is pressed forwards between the bellies of the short flexor muscle. This is the cause of the dislocation being often so difficult to reduce; for the displaced sesamoid bones intervene between the hinder surface of the metacarpal bone and the anterior surface of the phalanx, and, being drawn upwards in this position by the contraction of the short flexor muscle, prevent the articular surfaces from coming into contact, and offer an obstacle to their replacement, which has often been found insurmountable. That this position of the sesamoid bones and of the short flexor muscle is really the cause of the difficulty, may easily be proved by dislocating the bones in the dead subject. It will be found that one or both of the lateral ligaments are torn; and that the sesamoid bones retain their connection with the phalanx, and with the short flexor muscle in the manner I have described. If now the short flexor be seized with the forceps and kept on the stretch so as to act only slightly upon one sesamoid bone, very powerful traction may be used without replacing the phalanx. Whereas if the lower end of the sesamoid bone be hitched a little forward upon the head of the first phalanx, or even if the influence of the short flexor be relaxed, the dislocation is at once easily reduced. In the living subject the difficulty may sometimes be overcome by bending back the phalanx, and so tilting the lower edges of the sesamoid bones downwards and forwards upon the head of the metacarpal bone. If a case resisted traction, tried to a fair extent, I should be disposed to make an incision, at a convenient place, sufficiently large to admit a small blunt hook, with which I would endeavour to pull forwards the sesamoid bones. It should not be forgotten that, though the sesamoid bones create so much difficulty in reducing the dislocation, they afford very great protection to the joint against such displacement, extending as they do, the area of the osseous surface articulated with the metacarpal bone, and converting it, from an almost flat, to a deeply concave shape; in short, constituting a quasi olecranon to the base of the phalanx.

In the case of the second joint also the sesamoid body serves to prevent dislocation of the last phalanx backwards; and when that accident does take place, the sesamoid body is carried with the displaced bone behind the head of the first phalanx. Being here placed between the two articular surfaces, it prevents their coming into contact when attempts at reduction are made; and the greater the force which is exerted, the more tightly is it wedged between the two bones. I have proved this to be so by experiments on the dead body. In one case of compound dislocation, in which powerful extension and divers expedients to reduce the bones had been made for more than an hour by myself and others without success, I contrived to carry a probe to the back of the joint beneath the sesamoid body and tilted up its lower edge; the dislocation was immediately reduced, and without any further difficulty.—*Treatise on the Human Skeleton, p.* 434.

70.—ON FRACTURE OF THE NECK OF THE THIGH BONE.

By G. M. Humphry, Esq., Surgeon to Addenbrooke's Hospital, Cambridge.

The horizontal section of the neck of the thigh bone shows that it describes a slight curve with the convexity forwards, that is, opposite to the direction of the curve, which is formed at the junction of the base of the neck with the upper part of the shaft. The curvature is greater on the hinder than on the anterior surface of the neck. It results from this curve, that when fracture is caused by a blow or fall upon the trochanter, the bone yields in the direction of its convexity, that is in front, and the periosteum and synovial membranes are apt to be lacerated in that situation by the sharp projecting edges of the fracture. Moreover, the anterior convex surface of the neck is rough, perforated by many holes for vessels, and is, therefore, closely connected with its periosteum, in comparison with the posterior concave surface, which is very dense, smooth, and loosely connected with its periosteum. For these two reasons we find that in by far the greater number of cases of fracture of the neck of the thigh bone, the periosteal and synovial investments of the bone, are torn through in front, but retain their continuity behind.

The liability to fracture of the neck of the femur in elderly persons, and especially in elderly females, is dependent on the following causes:

First, this part of the skeleton has to bear a considerable weight, which falls upon it in a very unfavourable direction; and the direction becomes increasingly unfavourable in advancing years, owing to the gradual decrease of the angle between the neck and the shaft.

Secondly, during the early and adult periods of life, the neck of the femur is able to meet this difficulty by the large amount of cancellated texture that fills its interior, and by the cancelli being disposed in such a manner as to afford support in the direction in which it is most needed: so that the neck of the femur is very much dependent for its strength upon the arrangement and perfection of its cancelli. In old age, however, at the same time that the difficulty is being increased by the alteration of the angle, the compensatory aid is being withdrawn by that absorption of the cancellated tissue, which takes place, more or less, in all parts of the skeleton at this time of life, and which seems to begin, and to proceed, most quickly in the upper end of the thigh bone.

Thirdly, the lessening of the angle formed by the neck of the femur with the shaft in elderly people throws the hips more out, and renders them more exposed to injury. These are probably the chief causes of the frequency with which fracture occurs through the neck of the thigh-bone in old age, and of the comparative exemption of young persons from the accident. The breakage, as I have already said, takes place most frequently near the head of the bone: it is also not uncommon in the opposite or trochantral part of the neck.

In the latter situation reparation will, under favourable circumstances, commonly take place, and bony reunion will be effected. In the former situation such a result is not to be expected; because the bone is here only surrounded by a thin sheet of fibrous and synovial tissue, which affords no opportunity for the formation and lodgement of the materials from which any external callus might be formed; because the bony surfaces themselves are not retained in sufficiently close and steady apposition to permit of the slow process of direct osseous union between them; and because that process is still further disturbed by the admission of synovial fluid into the fracture. It has now and then happened that the two fractured surfaces have been held closely together, probably because a portion of one was driven tightly into the other; and, under such circumstances, bony union has been established, but this is a rare event. Sometimes the parts are joined by fibrous tissue; often, however, they remain nearly or quite unconnected; indeed the portion of the neck that intervenes between the fracture and the trochanters usually undergoes absorption, in consequence, probably, of the pressure and friction to which it is subjected, against the acetabulum and surrounding parts, by the weight and movement of the limb and by the contraction of the muscles.—*Treatise on the Human Skeleton, p.* 471.

71.—UPON THE CAUSES OF DEATH AFTER AMPUTATION.

By Thomas Bryant, Esq., Assistant Surgeon and Surgical Registrar to Guy's Hospital.

[The following paper, which was read before the Royal Medical and Chirurgical Society, is based upon an analysis of 300 cases of amputation collected from the records of Guy's Hospital.]

The author had divided them into four classes; and although he had not thought it necessary to alter the ordinary division of traumatic amputations into primary and secondary, he had made some change in the division of the other forms; for it became evident, in the analysis, that the classing together of such cases as amputations for talipes, tumours, elephantiasis, deformity, and others of a like character, with those of diseases of the joints, a wrong result must ensue; and, practically, this was found to be the case. He therefore divided these cases into pathological amputations and amputations of expediency, choosing the latter term as more accurately expressing the reason for the operation, as limbs are removed for tumours, talipes, elephantiasis, and deformity, more from expediency than necessity; and he therefore suggested the use of such a term until a better was proposed.

The author then proceeded to an analysis of the table of amputations, including

167 cases of pathological amputations,
33 „ amputations of expediency,
76 „ primary amputations,
24 „ secondary amputations;

and having given in detail the analysis of each division, he summed up the whole in the following general conclusions:—

1. That in the amputations of the extremities, taken altogether, 25 per cent. are fatal; 30 per cent. in the lower extremity, and 10 per cent. in the upper.

2. That amputations, as a whole, are fatal in the following order: secondary, 50 per cent.; primary, 43 per cent.; amputations of expediency, 30 per cent.; pathological amputations, 12·5 per cent.

3. That in pathological amputations of the
Thigh, 18 per cent. are fatal, or 1 in 5·5;
Leg, 7·7 „ „ „ 13·;
Foot and upper extremity, success generally follows.

4. That in amputations of expediency of the
Thigh, 31·5 per cent. are fatal, or 1 case in 3·16;
Leg, 66·6 „ „ „ 1·5;
Upper extremity, fatal cases are exceptional.

5. That in traumatic amputations of the lower extremity 60 per cent are fatal; of the upper 18 per cent.; and that traumatic amputations of the leg are, at least, as fatal as those of the thigh.

6. That secondary amputations are more fatal than primary.

7. That in amputations of the thigh for chronic disease of the knee-joint, one case only out of seven proves fatal, or about 14·5 per cent.; but for acute suppuration, a fatal termination is the rule.

8. That in amputations of the lower extremity for tumours, 36 per cent. are fatal; of the upper, recovery may be generally expected.

The author then proceeded to the more immediate subject of the causes of death after amputations; and having given two tables, showing the different causes of death, and their proportions or per-centages both to the fatal cases and the whole number of amputations, he went on to the analysis of each division, and having given a detailed account of each, he condensed the whole into the following conclusions:—

General Conclusions upon the Causes of Death in Amputations generally.

1. That 25 per cent. are fatal.
30 per cent. of the lower extremity.
10 per cent. of the upper.

2. That pyæmia is the cause of death in 42 per cent. of the fatal cases, and in 10 per cent. of the whole number amputated.

3. That exhaustion is the cause of death in 33 per cent. of the fatal cases, and in 8 per cent. of the whole number amputated.

4. That the following causes of death are fatal in the annexed proportions:

		Of Fatal Cases.		Of Whole Number.	
Secondary hemorrhage		7	per cent.,	or 1·66	per cent.
Thoracic complications		5·6	„	1·33	„
Cerebral	„	3·	„	·66	„
Abdominal	„	1·4	„	·33	„
Renal	„	3·	„	·66	„
Hectic	„	3·	„	·66	„
Traumatic	„	7·	„	1·66	„

Pathological Amputations.—1. That pathological are by far the most successful amputations, 12·5 per cent. proving fatal. Such amputations of the upper extremity are generally followed by success. Of the lower extremity, 15 per cent. terminate fatally.

2. That pyæmia is the chief cause of death, proving fatal in 43 per cent. of the fatal cases, and in 5·4 per cent. of all pathological amputations; and when fatal, as a rule, it causes death within fourteen days of the operation.

3. That exhaustion, either from the shock of the accident or of the operation, from hemorrhage, or all three causes combined, is the cause in 33 per cent. of the fatal cases, or 4 per cent. of all amputations.

4. That secondary hemorrhage is the fatal cause in only 9 per cent. of the fatal cases, and in 1·4 per cent. of all amputations.

5. That hectic, abdominal, and thoracic complications act equally as causes of death in 13 per cent. of the fatal cases, and in 2 per cent. of all amputations.

Amputations of Expediency.—1. That 30 per cent. are fatal; but as amputations of the upper extremity are, as a rule, successful, the per-centage of this operation upon the lower is much increased, 40 per cent. proving fatal.

2. That pyæmia is the chief cause of death, proving fatal in 60 per cent. of the fatal cases, and in 18 per cent. of all such amputations;

and when fatal, as a rule, death takes place within 14 days of the operation.

3. That death from exhaustion occurs in but 10 per cent. of the fatal cases; and that some thoracic or renal complication, or carcinomatous infiltration, are fatal causes in the same proportion.

Primary Amputations.—1. That 43 per cent. are fatal; 60 per cent. of the lower extremity, and 30 per cent. of the upper.

2. That primary amputations are more successful than secondary.

3. That pyæmia is the cause of death in 43 per cent of the fatal cases, and in 16 per cent. of the whole number, and that, when fatal, the symptoms appear, as a rule, between the seventh and fourteenth days after the operation, and cause death in the third or fourth week, and not during the first two weeks, as in pathological amputations and those of expediency.

4. That exhaustion is the cause of death in 32 per cent. of the fatal cases, and in 12 per cent. of the whole number.

5. That traumatic complications prove fatal in 15 per cent. of the fatal cases, and secondary hemorrhage, cerebral or thoracic complications, about 7 per cent. each; renal disease proving a cause of death in 3·5 per cent.

Secondary Amputations.—1. That 50 per cent. are fatal; 68 per cent of the lower extremity, and 12·5 per cent of the upper.

2. That secondary amputations are more fatal than primary by about 8 per cent.

3. That exhaustion is the chief cause of death, proving the cause in 60 per cent. of the fatal cases.

4. That pyæmia is the cause in 25 per cent. of the fatal cases; secondary hemorrhage and hectic in the remaining 15 per cent.

Conclusions upon Pyæmia as a Cause of Death.

1. That it is the cause of death in 42 per cent. of all fatal cases of amputations, and in 10 per cent. of all amputations.

2. That it is the cause of death in the different forms of amputation in the following order:—

1. In 70 per cent. of all fatal amputations of expediency.
2. In 43 „ „ primary amputations.
3. In 43 „ „ pathological „
4. In 25 „ „ secondary „

and that in amputations of expediency it is the most frequent cause, and in secondary amputations the least.

3. That in amputations for acute suppuration of the knee-joint, whether the result of an abscess discharging into the joint or otherwise, pyæmia is a more frequent cause of death than in amputations for chronic disease.

4. That it is the general cause of death in amputations for talipes, elephantiasis, and tumours.

5. That in primary amputations, and in amputations of expediency

of the leg, it is a more frequent cause of death than in the same operations upon the thigh.

6. That, upon the whole, pyæmia appears to be a more frequent cause of death in amputations through limbs the tissues of which are in a normal condition, and where a large surface of healthy bone is exposed.

7. That in pathological amputations, and in amputations of expediency, pyæmia, as a rule, proves fatal within fourteen days; but, after traumatic amputations, the period of death is about the twenty-fifth or twenty-sixth day.

General Conclusions upon Amputations of the Thigh.

1. That 27 per cent. are fatal.

Pathological amputations,	18 per cent.
Amputations of expediency,	31 ,,
Primary amputations	60 ,,
Secondary ,,	75 ,,

2. That in amputations of the thigh for chronic diseases of the knee-joint, about 15 per cent. are fatal, or 1 case in 7.

3. That amputations of the thigh for acute suppuration in the joint are generally fatal; and that pyæmia is the chief cause of death in these cases.

4. That exhaustion and pyæmia are causes of death in equal proportions, or in about 40 per cent of the fatal cases; and in 10 per cent. of all amputations of the thigh.

5. That exhaustion is most fatal in primary amputations, and the least so in amputations of expediency.

6. That pyæmia is most fatal in amputations of expediency, and the least so in primary.

7. That primary amputations are, for the most part, fatal from exhaustion; 35 per cent. of the cases sinking from this cause, 15 per cent. from pyæmia, and secondary hemorrhage and traumatic complications 5 per cent each.

8. That exhaustion, pyæmia, and hectic are equally fatal causes in secondary amputations, proving fatal in 25 per cent. each.

Amputations of the Leg.

1. That 37 per cent. are fatal.

Pathological amputations,	7·7 per cent.
Amputations of expediency,	66·6 ,,
Primary amputations	62·5 ,,
Secondary ,,	66·6 ,,

2. That amputations of the leg are 10 per cent. more fatal than of the thigh; the amputations of expediency and traumatic amputations being more fatal and the latter more frequent.

3. That amputations of expediency of the leg are generally fatal, being twice as fatal as those of the thigh; that pyæmia is the chief cause of death in 75 per cent. of the fatal cases and in 50 per cent. of all such amputations.

4. That in primary amputations pyæmia is the cause of death in half the fatal cases, or in 32 per cent. of all such operations; exhaustion and visceral complications about 8 per cent. each.

5. That comparing primary amputations of the thigh and leg together, they are equally fatal; but that pyæmia is twice as fatal in amputations of the leg as in amputations of the thigh.

6. That half the cases of secondary amputations die from exhaustion; pyæmia and secondary hemorrhage being fatal in 8 per cent each.

7. That taking all amputations of the leg together, 42 per cent. of the fatal cases die from pyæmia, and 32 per cent. from exhaustion.

Amputations of the Upper Extremity.

1. That 10 per cent. are fatal.

2. That pathological amputations and those of expediency are, as a rule, successful.

3. That about 20 per cent. of traumatic amputations are fatal; 22 per cent. of the arm, and 16 per cent. of the forearm.

4. That one-third of these fatal cases die from pyæmia; one-third from some traumatic complication; and the remaining third from secondary hemorrhage or visceral disease.—*Lancet, March* 12, 1859, *p.* 262.

72.—ON DISARTICULATION OF THE SCAPULA.

By George M. Jones, Esq., Jersey.

[The following interesting case was brought before the Medico-Chirurgical Society in December last:]

The patient, a girl aged fourteen years and a half, had enjoyed good health until December, 1857, when she first felt pain at the top of the left shoulder, ascribed to the exertion of carrying a heavy child; severe inflammation about the shoulder followed, being most intense over the upper part of the humerus; an abscess formed, and burst spontaneously. The constitution suffered severely. When Mr. Jones first saw the patient, there were four large fistulous openings over the left shoulder, two communicating with the clavicle, one with the head of the humerus, one with the glenoid cavity, and one with the dorsum of the scapula, bare bone being easily felt in each. Several small fistulæ, which did not apparently lead to necrosed bone, existed in the scapular region, and yielded an offensive discharge. The textures covering the shoulder were generally thickened and puffy, and tender to the touch. The patient's health and strength were failing rapidly, and Mr. Jones deemed operative interference imperatively called for. Accordingly, on the 19th of May, 1858, the patient having been placed under chloroform, the operation was performed. An incision was first made along the whole extent of the spine of the scapula, and carried an inch beyond towards the mesial line of the back; another incision was then made to meet this along the upper border of the bone down to its angle. The integuments were raised by careful dissection, and by this process the whole bone was fairly exposed, its periosteal investment being everywhere found so thickened, pulpy, and softened, as to yield easily to pressure of the finger. The acromial end of the clavicle being found to be softened and altered by disease, an inch of the bone was removed. The posterior scapular artery was the only vessel which needed a ligature; several small ones were closed by torsion. Sutures and strips of plaster were used to bring the edges of the wound together, the deeper cavities, including the glenoid fossa, being plugged with lint. The operation occupied three quarters of an hour.

On examination, the scapula was found so extensively diseased that its characters were almost destroyed. The glenoid surface and neck were entirely removed, and no vestige of the spine remained, its position being occupied by new, irregularly-deposited osseous matter, at the base of which lay a deep chasm, that extended three-fourths across the body of the bone. The inferior angle of the bone was the seat of extensive caries. The body of the bone presented two deep perforations, and all these different cavities contained sequestra of dead bone, while other portions of the scapula were in different stages of exfoliation. There was also a large amount of new osseous matter deposited in different situations about the bone. The head of the humerus was found healthy, and covered with its natural cartilage.

With the exception of a very critical condition during the first two or three days, which was ascribed to the action of the chloroform, the patient made a good recovery. The wound healed entirely by granulation, the head of the humerus being exposed for some time. She was unsparingly supplied with nutritious diet and stimulants. She left her bed and walked in the garden in three weeks and as many days, and at the end of a month she could sew without pain or difficulty. At present she can raise her arm twelve inches from her side, and can support it horizontally from the body, with very slight exertion; she can raise the hand to the opposite shoulder or to the mouth with ease, but not to the top of the head; she can put her arms behind her, can lift a large and heavy hospital register book, and can scrub the floor or make her bed. There is a decided falling of the shoulder, but by no means amounting to deformity. There is no wasting of muscular substance on the chest or back, and when dressed it would not be perceived that any serious operation had been performed. The deltoid is fully developed. The head of the humerus is easily felt moving freely in its new bed, and not the slightest pain is felt on any amount of motion. Up to this present time, the range of this motion has steadily increased, and, with the exception of the movements for which the scapular origin of the deltoid is indispensable, it may be confidently expected to increase still further, and nearly to equal that of the other arm.

The author concluded his communication by observing that he considered there was much less danger from hemorrhage in the removal of the entire bone, than, as in Mr. Liston's case, in the excision of only a portion; that he should prefer the former operation in any future instance, and he trusted that the relation of this successful case would go far to remove many prejudices now existing against this operation.

[Mr. Fergusson brought this case before his pupils at King's College Hospital. It is noticed in the report as follows:]

The patient, who is a remarkably healthy-looking young woman of sixteen, hardly presented any indications of having had such a formidable operation performed, as she walked into the theatre, carrying her head erect, and her arm in almost the natural position. On examining the parts it is found that the head of the humerus has formed for itself a new attachment, just below and in front of its natural situation. The upper arm itself is well developed, the limb measuring just nine inches in circumference, that on the other side being half an inch larger. There is very considerable motion in the new joint; the patient can carry her arm to an angle of 45° from her body outwards; she can throw her arm across her body in front, carrying her hand to her mouth and to the opposite ear. She can throw her arm behind her, resting the forearm horizontally across her back; the movement of her hands are natural, she can knit, sew, and perform other useful occupations. Mr. Fergusson, in the course of some remarks, observed that it was the only living instance he knew of where an operation of a similar kind had occurred. It was impossible to come to any other conclusion than that the case was most successful, and one of the greatest triumphs of modern surgery; and its issue reflected the greatest credit upon the surgeon who operated. There were some who might criticise the success of the case, inasmuch as certain muscular movements were not so free as might be anticipated; but it was to be borne in mind that only a few months had elapsed since the operation was performed; moreover, it was undertaken to save life; this had been effected, and, in addition, a useful arm was preserved to the patient.—*Lancet, Jan.* 1, 1859, *p.* 16, *and Med. Times and Gazette, Dec.* 25, 1858, *p.* 657.

73.—AMPUTATION AT THE CARPO-METACARPAL ARTICULATION.

By R. Rudall, Esq., Sheepwash, North Devon.

[With the following letter Mr. Rudall sent a cast of the stump to the office of the Medical Times and Gazette, where it may be seen. The hand had been removed at the carpo-metacarpal articulation. Mr. Rudall says:]

I have performed this operation between the years 1828 and this time, on four different occasions, the results of injuries from fire-arms and machinery. The last case will suffice for the present notice. A boy, aged thirteen years, on the 20th of January of this year, sustained an injury of the right hand, from its passing between two wheels of a powerful machine, by which the fingers and lower portions of the metacarpal bones were literally ground to atoms. The shock upon the system was intense ; ten hours elapsed, during which stimulants were freely administered, before I felt myself warranted in operating. I feared the use of chloroform, and proceeded to the operation, which of itself is very simple, and may be done four or five times while describing it once. I made my first flap on the thenar and palmar aspect, commencing on the dorsal half of the articulation of the thumb, with the trapezium carrying my flap so far into the palm of the hand as was well saveable, the dorsal flap was not so large. Having divided the integuments of each flap with the muscles, tendons, &c., disarticulation was effected, by bending the hand on the wrist, and separating the articulations from the dorsal aspect of the joint. Ligatures are not necessarily required in this operation, torsion effected with Liston's common artery forceps being sufficient. The flaps were brought together by three sutures and cold water dressings, which were the only means resorted to for the perfection of the cure. Duration fourteen days.

It seems strange to me, that while we have so many operations put before us, as available under different circumstances, for the removal of portions of the foot, that the wrist has been sacrificed, as though of no use when the metacarpus and phalanges shall have been lost. We have many scientific mechanists in the present day, and a variety of flexible materials which could be applied to the manufacture of something like a substitute for a hand. In all my cases the use of the wrist has been most efficient, flexion and extension complete, pronation and supination perfect. Were this boy a fiddler, a bow fixed at the extremity of the carpal stump would have every motion it would be capable of making were the hand present.

I find an allusion to amputation at the wrist in Mr. Fergusson's "Practical Surgery ;" but it relates to the radio carpal articulation. He says, "It posesses no particular advantage, the length of the stump is of no great consequence ; the flaps, with the numerous tendons in them, may not heal readily," &c., &c. "Surgeons in this country have had but little experience of this operation, yet, considering the success which has attended amputation at the ankle-joint, a proceeding to which this may in some respects be deemed analogous, I am inclined to modify the estimate above given, and should certainly wish to see the practice more frequently tried than has yet been the case." Sir Astley Cooper, in his lectures, describes amputation at the wrist-joint, *i. e.* the carpo-radial. The late Mr. B. Cooper, in his edition of Sir A. Cooper's work on "Dislocations and Fractures of the Joints," describes, Case 313, an accident in which he amputated at the carpo-radial joint, in which I think he would have done better had he adopted the plan I advocate. No great difficulties that I have ever heard or read of have presented themselves to amputations of the tarsus and metatarsus, however varied they have been, save that of Mr. Hey, who did not reserve a sufficiency of integument in his first operation. Since Hey, we find Chopart, Syme, Pirogoff, Mr. Fergusson, and in short, almost every surgeon making his own modifications of this operation, apparently losing sight of the healing of the flaps, and the numerous tendons in them; besides, they have overlooked a more valuable conservation, the wrist, with its various movements, which, as I have said before, in the cases which have come under my care, have been perfect.—*Med. Times and Gazette, Oct.* 30, 1858, *p.* 456.

74.—ON INJURIES OF THE HAND AND FINGERS.

By Samuel Solly, Esq., Surgeon to St. Thomas's Hospital.

[It is well understood now that injuries of the small joints and bones, such as the hand, fingers, &c., do not require the same operations as the larger parts. Nature can bear up during the cure of a small part while she would sink during the cure of a large one. Mr. Solly brings forward the following cases to illustrate this.]

Suppose in one of these crushing injuries of the hand, whether by machinery or by the force of gunpowder and shot, the thumb is wrenched out of its joint, with the carpus and all the muscles of the ball of the thumb torn through, though not quite detached, still united by some skin and cellular tissue, and the dorsal arteries intact, you ought not to remove that thumb with your knife, but you should replace it in its normal position, and thus try to save it. If you fail. and gangrene ensues, your patient is no worse; if you succeed, your patient retains a useful hand, though all his fingers may have been carried to the winds. It is astonishing how well these cases do, even when the connecting medium left seems to be little more than a narrow piece of dirty lacerated skin.

The case, to which I first referred as having encouraged me to save this man's hand, and many others since, was admitted under my care in April, 1845, rather more than thirteen years ago. On admission he was seen by one of my late colleagues as well as myself, and nothing perhaps will more convince you of the formidable appearance of the injury, than the fact that this colleague thought me very imprudent in attempting to save any portion of the hand, and urged me to amputate at the wrist-joint. I will read to you briefly the short notes that I took at the time, and afterwards you shall see the man himself, and the use he can make of his hand.

Robert H., aged thirty-three, married; six children; temperate habits; lives pretty well; pressman; came to St. Thomas's Hospital, on Wednesday, April 2nd, 1845, with extensive injury of the hand. On admission, I found all the fingers crushed; the thumb remained entire; the skin was torn and stripped off about half-way up, on the back of the hand, the edge of the laceration extending transversely from the thumb to the inner side of the hand. The palm of the hand was opened; there had been some hemorrhage, but it was not bleeding much when I saw him. The accident happened in the following manner: he was applying grease to the cogs of a wheel in a printing-machine, when the hand was drawn in, and crushed between the two wheels, tearing off the extremities of two fingers, and retaining them in the machinery.

From the severity of the injury, it was very evident that amputation of some kind was necessary. The only point to decide was, whether it was possible to save any portion of the hand, or whether the whole should be removed at the wrist-joint. Finding the metacarpal bone supporting the little finger entire, and the whole of the thumb, I determined to save them. I made an incision with the small catling posteriorly along the edge of the lacerated wound; anteriorly, I was able to preserve more skin, and from the palm of the hand I made my flap. I then sawed through the three larger metacarpal bones very near to their heads, leaving that of the little finger entire. He had no bad symptoms during the healing process. The flaps did not unite by the first intention, and the wound was some time in healing, but it ultimately did so in a sound, healthy manner.

When he first left the hospital, which was about two months from the time of his admission, he had little or no power of moving the stump formed by the metacarpal bone of the little finger, and he could hardly believe that he would ever gain any power over it, but on March 11th, 1846, about nine months after the operation, he had the power of approximating it to the thumb, and holding your hand between the two so firmly, that it was very difficult to break the connexion. Since this time he has resumed his occupation as pressman, and does his work as well as ever.

There is a cast of the hand in the museum of St. Thomas's Hospital.

I will next read to you the cases which occurred at the West Herts Infirmary, from the notes of our house-surgeon, Mr. Sutcliffe.

Cases of Injury to the Hand, admitted into the West Herts Infirmary.—Albert S., aged twenty-nine, admitted April 4th, 1856, under the care of Mr. Ambler, with lacerated hand from the bursting of a gun. Compound fracture of little and ring fingers; thumb thrown on back of hand; head of metacarpal bone displaced from its articulation with carpus; all the muscles torn through, and much bruised and blackened; the thumb only hanging by a thin slip of skin. Removal of thumb, as it was thought useless to try and save it; water dressing and splint to fingers. The case did well, recovering perfect use of his fingers, and was discharged well on May 22nd, having been in the infirmary forty-eight days.

William F., aged twenty-two, admitted November 13th, 1856, under the care of Mr. Sutcliffe, with injury also from the bursting of a gun. In this case one finger was blown off, leaving a small portion of the first metacarpal bone ; the thumb, as in the other case, thrown on back of hand ; carpo-metacarpal joint opened, and most of the muscles torn through, but not so much bruised as in the former case. In this case the thumb was brought back into position, some sutures applied, and cold water dressing. The head of the metacarpal bone of the ring finger was removed. This case did well, and more motion than could have been expected was obtained in the thumb. He was discharged well on January 8th, 1857, having been in the infirmary fifty-eight days.

William P., aged thirteen, admitted Feb. 26th, 1857, under the care of Mr. Ambler, with injury to hand by machinery. The fore, middle, and ring fingers all completely crushed, as well as the palm of the hand, almost to the carpus, but not extending into that articulation ; the thumb was hanging loose ; the little finger not injured. The whole of the three injured fingers were removed, with the metacarpal bones, leaving the heads ; the thumb and little finger approximated and fixed with sutures ; cold water dressing applied. The case did well, and was discharged cured on April 9th, having been in the infirmary forty-seven days.

David H., aged twenty-seven, admitted on September 30th, 1858, under the care of Mr. Ambler. Whilst riding on a cart laden with corn, the horse became restive ; in attempting to get down, he slipped with his hand under the wheel, crushing the metacarpal bones of the fore and middle finger, extending into the carpo-metacarpal joints ; the integuments much torn ; the thumb nearly separated ; carpo-metacarpal joint opened. The whole of the two metacarpal bones and fingers were removed, the thumb approximated to the ring finger, sutures and cold water dressing applied. Some inflammation extended from the wrist up the arm ; matter formed, requring to be liberated. The case ultimately did well, and is all but healed ; motion is returning in the fingers and thumb. He has been in the infirmary forty-six days.

In the case of William F., although the thumb was so nearly off, he got very good motion in it after using it a few months, and was able to drive, his employment being that of a groom.

William P., who had only the thumb and little finger left, was able to hold a knife, and to feed himself with great facility, and did not seem to feel much the loss of so great a portion of the hand.

David H.'s case is going on well, and will be the best of the "lot." The thumb is now quite united, and he is beginning to be able to move it. The swelling of the wrist and arm, which has been great, has almost subsided. He will be discharged in about a week.

These cases are good instances of the best kind of conservative surgery, and I hope that they will encourage those of you who are intending to practise in the country to go and do likewise. No shooting season ever passes without some amount of injury to the extremities of her Majesty's liege subjects. The hand is frequently the seat of injury, and I am sure that many hands have been amputated which might have been saved. In such cases do not amputate the whole hand if there is any portion of the thumb or fingers left entire. If you are not bold enough to rest upon your own judgment, be honest enough to send for another opinion to assist it.—*Lancet, Jan.* 1, 1859, *p.* 1.

75.—ON SACRO-ILIAC DISEASE.

By John Erichsen, Esq., Professor of Surgery at University College, &c.

[This is a disease which attacks the articulation between the sacrum and pelvis; it is but seldom mentioned by writers. It is essentially a very chronic affection, lasting for twenty months, more or less.]

The *symptoms* characteristic of this affection arrange themselves in five distinct groups—viz., *pain*, *swelling*, *lameness*, *alteration in the shape of the limb*, and *abscess*. These we must study separately.

1st. *Pain.*—One of the earliest symptoms of this disease is a sensation of painful weakness at the lower part of the back and sacrum, increased by movements of the body in walking, stooping, or even in standing, giving the sensation as if the body was falling asunder. As the disease advances, the pain becomes more continuous, of a gnawing or rheumatic character. It is accompanied by a peculiar feeling of weakness, of falling asunder, or of want of support in the lower parts of the body. This pain is confined to the gluteal region and groin, and does not extend down the limb. When the patient is lying on his back or side, the limb on the affected side may be ab- or ad-ducted, or the head of the femur may be pressed up against the acetabulum, without any increase of pain, provided the pelvis be fixed by the pressure of the hands. If this be not done, considerable pain will be experienced on moving the limb. So, also, if the surgeon seize either side of the pelvis in each hand, and move it to and fro, or press them together transversely, pain will be elicited, the affected joint being then influenced by the movements communicated to it. There is tenderness on pressure about the gluteal region, but this is less about the hip-joint than in coxalgia, and gradually increases as the finger is pressed backwards upon the sacro-iliac articulation and sacrum.

2nd. *Swelling.*—A puffy intumescence is perceptible early in the disease, along the line of the affected articulation. It assumes a somewhat elongated appearance from above downwards, and does not extend to any distance outwards under the gluteal muscles, nor does it invade the natural hollow behind the trochanter. As the disease advances, and suppuration takes place, the swelling increases materially, and assumes different and peculiar characters, owing to the formation and diffusion of abscess.

3rd. *Lameness* is an early symptom. The patient walks insecurely; has a feeling as of want of proper support to the body; leans forward, and uses a stick. He puts the foot on the affected side to the ground, but does not tread upon it so firmly as upon the other. He cannot stand on the foot of the affected side, or twist himself suddenly round. As the disease advances, the powers of support and progression diminish, and at last the patient becomes unable to assume the erect position, lying in bed usually on the unaffected side.

4th. *Alteration in the shape of the hip and length of the limb* are early and marked symptoms. From the very commencement of the disease, the limb on the affected side will be seen to be longer than the sound one; the tip of the inner malleolus being usually, as the patient lies on his back, half an inch below the level of the same point of bone on the opposite side. But on close examination, it will be found that the measurement from the anterior superior spine to the inner malleolus gives equal results on both sides; hence the elongation cannot be owing to any change that has taken place in the bones or in the three large joints of the lower extremity, but must be dependent on some disturbing cause situated beyond the anterior superior spine of the ilium. On pushing our investigations more closely, we shall find that this point of bone is at a lower level, and at the same time more prominent, than its fellow on the opposite side, and that this displacement is produced, not by any obliquity of the pelvis consequent on a twist of the lumbar spine, as in hip-joint disease, but by the tilting forwards and rotation downwards of the whole side of the pelvis; for you will observe that the displacement which takes place is a double one. The anterior superior spine is not only at a lower level, but is also more prominent on the diseased than on the sound side. This is owing to the swelling of the affected articulation, not only pushing forwards, but rotating downwards, the anterior and superior portion of the ilium. The limb itself usually lies straight, is wasted and enfeebled.

5th. *Abscess* occurs only at a late period of the disease. Many months, a year or more, may elapse before suppuration is fairly established, or, at all events, before the formation of pus is so abundant and so circumscribed as to admit of recognition as an abscess. I have observed abscess occur in connexion with the disease in five situations—viz., over the articulation, in the gluteal and lumbar regions, within the pelvis, and in connexion with the rectum.

The first indication of abscess is met with over the diseased articulation. The puffy swelling which is there perceptible in the earlier stages of the affection gradually softens until at last fluctuation is established in it. From this point it may spread outwards into the gluteal region, nearly as far as, but not enveloping the trochanter;

or it may take another course, and stretch upwards, forming a considerable accumulation in the loin, upon and just above the crest of the ilium. These three forms of sacro-iliac abscess are *extra-pelvic;* the other varieties are *intra-pelvic.* These latter are of three kinds. In one form the pus passes out of the sciatic notch, and thus gets under the gluteal muscles; in the other variety it gravitates downwards into the ischio-rectal fossa, and presents by the side of the rectum; and, in the third variety which I have observed, the abscess opens into this gut, abundant puriform discharge takes place per anum, and flatus from the bowel passing into the suppurating cavity, a tympanitic abscess results.

The *prognosis* of this disease is always most unfavourable. I am not prepared to say that it is of necessity fatal, but I have never seen a patient recover after the full development of the disease, and after suppuration had set in. I have, however, seen a case cured, in which, from the history of the symptoms, the thickening over the sacro-iliac articulations, and the permanent displacement of the side of the pelvis, there was every reason to believe that this disease had existed. But in this instance no abscess had formed.

The *diagnosis* of sacro-iliac disease is important, and not always easy. There are five distinct affections with which it may be confounded—viz., neuralgia of the hip, sciatica, spinal disease, coxalgia, and disease of the pelvic bones.

1st. *Neuralgia of the hip* in young females may readily enough be confounded with the earlier stages of sacro-iliac disease. But the widely-spread and superficial nature of the pain in the neuralgic affection, the co-existence of the hysterical temperament, the sex of the patient, and the absence of all limitation of morbid action to the neighbourhood of the diseased articulation, render the true nature of the affection sufficiently clear. The obliquity of the pelvis, which occasionally occurs in neuralgia of the hip, and causes apparent elongation of the limb, is readily removed when the patient lies on her back; whereas, in sacro-iliac disease, position does not affect the displacement of the limb on the affected side.

2nd. *Sciatica.*—In this affection, the age of the patient, (usually more advanced than that of the subjects of sacro-iliac disease), the seat of the pain, below the articulation, and its extent down the back of the limb, with the absence of elongation, will enable the surgeon to effect the diagnosis.

3rd. From *spinal disease,* the diagnosis is usually sufficiently easy, for although the situation of abscess resulting from caries of the vertebræ, may in many cases be the same as that which is occupied by the collections of pus resulting from "sacro-iliac disease," yet in caries of the spine, in the vast majority of instances, excurvation of the vertebræ has become prominently marked by the time that the abscess has assumed so great a magnitude as to occupy the inferior lumbar or gluteal regions. In those rare cases in which, as in an instance that was recently under my care, caries of the vertebræ, with consecutive abscess, takes place without any angular curvative, it will be found that the patient complains of tenderness on the surgeon percussing the spine opposite the seat of disease; that the spinal column has lost its flexibility, moving stiffly and as a whole; that there is an absence of that elongation of the limb on the affected side, dependent on displacement of the wing of the pelvis, which is so early observable in sacro-iliac disease; and lastly, that examination of the sacro-iliac synchondrosis neither elicits pain nor reveals swelling or any of the other signs of disorganization of that articulation.

4th. *Coxalgia* is the affection that is most easily confounded with sacro-iliac disease, and that from which it is of most importance to make the diagnosis. It is especially from that variety of hip-disease that commences in the acetabulum, that primarily involves the pelvic bones, and only secondarily implicates the joint, that it is difficult to distinguish sacro-iliac disease; and the importance of effecting this diagnosis is great when we reflect that these cases of hip-disease may now successfully be subjected to operative interference, as you have recently seen in the case of F——, whilst sacro-iliac disease does not admit of relief or removal by these means. Now, the diagnosis between coxalgia in all its forms and the disease we are at present considering may be effected by attention to the following circumstances:—

(1.) The seat of pain on pressure. In hip-disease the patient suffers most severely when pressure is exercised deeply behind and above the trochanter, in the hollow behind that osseous prominence, or when the compression is exercised against the anterior part of the hip-joint through the pectineus muscle. In sacro-iliac disease little or no pain on pressure is experienced in these situations; but tenderness is elicited by pressure upon the sacrum and along the line of junction between the sacrum and ilium, behind and altogether away from the hip.

(2.) The movements that occasion pain are different in the two diseases. In hip-disease, abduction and rotation outwards, or pressure of the head of the femur into the acetabulum, aggravate, to a greater or less degree, often to an unbearable extent, the sufferings of the patient. In sacro-iliac disease the thigh may be moved in all directions, ab- or ad-ducted, rotated, flexed, or extended, whilst the patient is lying on her back, without any increase of suffering, *provided the side of the pelvis be fixed by the surgeon.* Should this precaution not be taken, the movement impressed on the thigh will be communicated to the diseased articulation, and will necessarily occasion suffering.

(3.) The signs connected with the alteration in the length of the limb differ in the two diseases. In hip-disease there may be, and usually is, in the advanced stages, considerable shortening. This never occurs in sacro-iliac disease. In the earlier stages of coxalgia there may be, as there is throughout in sacro-iliac disease, elongation of the limb. But there is an important point connected with this. The elongation in hip-disease is always appreciable by measuring from the anterior superior spine of the ilium to the inner ankle. In sacro-iliac disease, however, the measurement between these two points on the opposite sides of the body exactly correspond, the seat of the elongation being situated still higher up.

(4.) The alteration of the level and of the prominence of the two anterior superior spines, in sacro-iliac disease, may be confounded with that arising from the obliquity of the pelvis usually occurring in the early stages of coxalgia. But here also the diagnosis may be effected by observing that the displacement of the bone in sacro-iliac disease is permanent, and is not influenced by position. The obliquity of the pelvis in hip-disease, giving rise to apparent elongation of the limb, is dependent on a twist in the lumbar spine, which may be rectified by placing the patient on his back, and using a little manipulation. The alteration in the level of the two ilia, in sacro-iliac disease, is not modified by change of position, or by any movement that may be impressed upon the spine.

5th. *Disease of the pelvic bones* may of course occur independently of any affection of the sacro-iliac articulation, and when so occurring, it always commences at a distance from it, the crista ilii, the tuber ischii, or the acetabulum, being the usual seats of the disease. When occurring in the first of these two situations, the resulting abscess seldom attains a very large size, and is altogether above or below the synchondrosis, the outline of which can be felt clear and unobscured by swelling of any kind. When the abscesses are opened, the sinuses that result will lead directly down to the rough and carious bone, examination of which will leave no doubt as to the nature of the cases. In these cases, also, no change takes place in the length of the limb, or in the position of the side of the ilium.

When the acetabulum is primarily affected, the difficulty of diagnosis may be greater, in consequence of the large size and often intra-pelvic nature of the abscesses, and the co-existence of a certain amount of displacement or elongation of the limb. But here the same circumstances that enable the surgeon to effect a diagnosis in ordinary coxalgia—viz., the pain in movement influencing the hip-joint merely, and the increased length of limb, as determined on measuring from the anterior superior spines—will prevent his falling into error as to the true nature of this disease.

I have thus endeavoured to point out the pathology and diagnosis of a somewhat obscure surgical disease. With respect to its treatment I have but little to say, and that by no means of a satisfactory character. I am not prepared to state that the affection is invariably fatal, but certainly in the very great majority of instances it is so, the profuse discharge from the large abscesses connected with it inducing hectic and exhausting the powers of life. The treatment must be conducted on the same general principles that guide us in the management of cases of carious disease of the spine: rest in the prone position; counter-irritation, in the earlier stages, before suppuration has set in,—after that has occurred this is worse than useless,—opening abscesses, when large and chronic, by valvular incision, and keeping up the powers of the patient, are the means that must be had recourse to, but usually, unfortunately, with little advantage beyond the mitigation of suffering and the prolongation of life for a limited time. I need scarcely say that operative interference is not admissible here.—*Lancet, Jan.* 8, 1859, *p.* 25.

76.–PROFESSIONAL REMINISCENCES IN THE TREATMENT OF CLUB-FOOT, AND OTHER COGNATE DISEASES.

By Dr. Francis Adams, Banchory.

[It is now fully twenty-five years since the author first performed the operation of Stromeyer for the cure of club-foot. The patient was a girl about twenty years old, who had been afflicted with varus from her birth.]

In this case the only apparatus used by me for stretching the contracted parts and remedying the distortion, was a simple piece of mechanism, consisting of a board about eighteen inches long, gently scooped out in the middle to hold the leg, with another board of suitable size to receive the foot—the two pieces being united behind by a hinge, with stout cords fastened near its extremity, to be attached by suitable holes to the back piece, so as to produce strong extension when thus tightened.

[The tendo-Achillis was divided from within outwards, and afterwards some slight bands on the sole of the foot. After an interval of two or three days the limb was fixed to the apparatus, every abnormal deflection being counteracted by the application of mechanical force in the opposite direction, and with complete success. Dr. Adams proceeds to say:]

I never decline undertaking the treatment of children after the third or fourth month, nor have I seen any reason to regret having followed this course, having never met with a case of relapse, except to a certain extent in one instance, where it was obviously the effect of mismanagement on the part of the child's mother. In infants, as a general rule, I never divide any other part except the tendo-Achillis. In their cases I do not recollect having ever interfered with the plantar fascia, nor. considering how extensible the parts of children are, can I suppose it likely that any abnormal tightness in the sole could resist proper force applied by binding it to the foot-board. In all the infantine cases I have put the limb and foot into an apparatus of similar construction to that described above for adults, and manipulated, according to circumstances, for ten days or so. But I have thought that this might be dispensed with by the proper application of bandages—so flexible are the parts in children. After a fortnight the only difficulty that remains is to keep the parts *in situ ;* for, it must be admitted, the tendency to relapse in children is very great. To obviate this I have tried various expedients. Sometimes a strip of adhesive plaster may be carried from the outside of the leg round the inside of the foot, so as to effect the purpose required. But, in general, I apply first a laced hose or stocking. extending from the foot to the knee, with a strip to go round the inside of the foot, and be fastened, on the outside of the leg, with small buttons, hooks and eyes, or stitches. The limb is then placed in a firm leather boot, laced along the front, which is to be worn day and night, for the space of at least a year. Until then, it must be admitted, the risk of a relapse is not gone; but, I repeat, from ample experience, I can say that, with proper care, the result will always be satisfactory. Indeed, in a short time the little patient will stand on its feet, and walk about like a child of its years.

Most commonly, whether in infants or adults, I get the patients, when beginning to walk, to put on a half-boot of stout pasteboard, with a sole of the usual material, namely, bend-leather. When the leg is properly secured in it, all risk of displacement is effectually obviated. Adults walk very well with such an apparatus, but infants are apt to trip, and it does not answer so well with them.

I have performed many cases of *talipes valgus*, in which I usually divide the contracted tendons of the *peronæi*, the *tibialis anticus*, and occasionally the *extensores.* The limb, after a short interval, is then laid on an apparatus similar to that used for *varus*, with only this difference, that the board or part behind is extended about eighteen inches beyond the hinge at the heel, to which board, when cords drawn from the extremity of the foot-piece are fastened, the most powerful extension of the parts in front of the ankle can be effected. In the treatment of valgus, it is to be noted that, contrary to what happens in varus, premature attempts at walking must be avoided, as tending to induce relapse ; still, I must say, that almost every case I have undertaken has been greatly remedied.

I have operated on a good many cases of contracted knee-joint with almost invariable success. One of these was a poor woman about twenty years old, who had passed through all the worst symptoms of what is commonly called white swelling, and had been advised by several surgeons (including myself,) to submit to amputation as a *dernier ressort.* And in this case, although there was apparently a partial displacement of the bones of the leg from the thigh, and although the suppuration in the joint had been most extensive, the recovery was so complete that the limb, except that it is stiff at the joint, is in all respects as useful for every purpose of locomotion as the other. About fourteen years ago, a young lady put herself under my charge for treatment, whose right leg was fixed almost immoveably at right angles to the thigh, and who thus walked with her knee rest ing on an apparatus similar to what is used in cases of amputation below the knee. In this case the hamstrings on both sides required to be divided at the commencement, and two or three weeks afterwards the tendo-Achillis. Extension was perseveringly performed, and patiently endured, for five or six weeks, when the affected limb was found to be as straight and as long as the other ; and now it is nearly or altogether as serviceable for walking. In these cases the practical rule is, that when there is even the slightest mobility in the joint, the case may be confidently undertaken. For my own part I can conscientiously aver that I have never stirred up the disease anew; but, of course, this might happen if a proper discretion were not exercised.

And here let me take this opportunity of declaring it as my opinion, that with more confidence in the restorative powers of nature,—more allowance of time for the diseased bones and cartilages to become wasted or ejected—and more skilful manipulation on the part of the surgeon in restoring distortions, the operations of amputation and resection would not be so frequently performed as they are at the present day. How does it happen that these operations are almost entirely confined to the lower orders ? I once asked an eminent physician in London, than whom no one has enjoyed a wider field of observation in the higher walks of life, whether he often remarked that the members of noble families had undergone mutilation for disease in their limbs? His answer was, " Scarcely ever." I have often lamented that there should not be *sanataria* in some healthy localities in the country, which would admit the children of the poorer class, and provide them with wholesome food, pure air, and suitable treatment, until they might recover from diseases which at present hold forth no alternative for them but mutilation or death,

In treating knee-joint contractions, the only modes of apparatus which I have ever used are,—1. A hollow splint with a hinge and screw, on the model delineated by Liston, in his work on surgery. 2. A straight trough or long piece of the strongest paste-board, such as will more than half enclose the limb, and extending from the middle of the thigh to the calf of the leg, in which, properly padded, the limb being laid, is to be firmly secured at the upper end by a bandage enclosing the limb and the apparatus, and less so at the lower ; a strong band being then bound round at the knee (of which the most effectual is a tourniquet), the most powerful extension may be effected. It is scarcely necessary to add, that in treating these and similar cases, it is indispensably necessary that the limb should be frequently freed from the apparatus for a time, and subjected to fomentations with anodyne liquids. Of course opiates at night, and general treatment, according to circumstances, are not to be neglected.

Operations for contractions of the thigh on the pelvis do not in general produce any great results; at all events, in cases of morbid coxarius, when the head of the femur is displaced from its socket

I see, indeed, in the Medical journals that, of late, operations have been done even under such circumstances, with a greater degree of success than I can claim for my own attempts in this line. However, I have done some most successful cases of restoration when the contraction had been occasioned by intense sciatica or neuralgia. In one instance of a poor man who had been thus confined for two or three years, until the tendons at the top of the thigh had become contracted upon the body, those of the leg upon the thigh, and the tendons of the foot on the leg, I succeeded by dividing in succession, the *tendo-Achillis*, the outer and inner hamstrings, and the *tensor vaginæ femoris* and *sartorius*; and by proper extension so restored him that he was able for several years to resume his employment as an assistant gardener and a labourer. Of late he has suffered much from renal disease, which seemingly has no connexion with his former complaints.

In all these operations I have preferred using a simple apparatus devised by myself for the occasion, to any of the more complicated mechanical instruments which are commonly employed. Some years ago the late Mr. Fortune, of Edinburgh, kindly sent me for inspection the very ingenious apparatus devised by him, being, in fact, a modification of Scarpa's boot. Dr. Pirrie, of Marischal College, Aberdeen, has also shown me a very nice apparatus invented a few years ago by a pupil of his, Mr. Aveling, which seems more simple, and to all appearance must be as effectual as any other contrivance of the kind which I have ever seen. However, as formerly stated, I have always preferred making use of the simple contrivances devised by myself, nor have I seen any reason to change my mind on this point.

It is with the restoration of contracted limbs as it is with the reduction of dislocations. Although in the course of ages many ingenious pieces of machinery have been invented for facilitating the treatment of the latter, it seldom happens that a skilful surgeon, well acquainted with general principles, will require to have recourse to them in order to accomplish his purpose.

The following, then, are the more important results of my experience in the management of the cases of which we have been treating:

1st. That the operation for the cure of club-foot in children may be pretty confidently undertaken after the third or fourth month, but that such cases require to be watched for sometime afterwards to prevent a relapse.

2nd. That in children it is seldom or never necessary to divide the plantar fascia, nor any other contracted band in the sole.

3rd. That in the treatment of children very little assistance from stretching machines is required, and that any return of the deviation may in general be prevented by careful bandages.

4th. That as a general rule in most cases of what is commonly called white swelling, more especially when the patients are young, the limb, after the subsidence of the acute symptoms, may be straightened by operative procedure, and suitable modes of extension, so as to be restored to its uses in walking.

5th. That in most cases of valgus a great deal may be accomplished by subcutaneous section of the contracted tendons and suitable extension.

6th. That in contractions of the thigh upon the pelvis when complicated with displacement of the head of the thigh-bone from the socket, little assistance can in general be rendered: but that when they are the consequence of neuralgic or arthritic affections of the limb they may be completely restored by dividing the contracted parts and practising extension.

7th. That in all such cases whether involving the ankle-joint, the knee, or the hip-joint, every practicable purpose, with proper care and attention to first principles, may be accomplished by means of temporary mechanical contrivances, at least as effectually as by the most complicated and ingenious machines.—*Med. Times and Gazette, March* 19, 1859, *p.* 287.

77.—ON THE TREATMENT OF CLUB-FOOT.

By JOHN LIZARS, Esq., Senior Operating Surgeon to the Royal Infirmary, Edinburgh.

The numerous cases of failure in the attempt to cure club-foot which have come under my notice, since the publication of my third edition on that subject, have induced me to direct the attention of the profession to the more prominent causes which I am persuaded have rendered operative assistance hitherto so abortive in this department of surgery. I shall select talipes varus, this species of deformity being of the most frequent occurrence.

1. The child is commonly operated upon when too young to enable it to assist in the cure.

2. The proper or necessary tendons or fasciæ have not been divided. This is an obvious and necessary cause of failure.

3. The proper apparatus and boot are not used after the division of the tendons and fasciæ. This is the chief and common cause, which frustrates all mere surgical measures to effect a permanent cure.

With regard to the first, I consider the child should be about three years old, at which age the skin is not so liable to be chafed from the apparatus, the application of which is so indispensable after the tenotomy, and that it may be old enough to walk, and thus assist in the cure. The majority of orthopœdists operate when the child is only a few weeks or months old, and, as might be expected, the operations fail. The two following cases will illustrate my first position: Mrs. R. brought me her son in the beginning of this last summer, 1858, affected with marked talipes varus of both feet. She stated that he was operated upon in the Royal Infirmary of this city when only six weeks old—both feet being cut on the same day. The mother, a shrewd, sensible woman, avers that there was no wound in the sole of the foot, and there is no cicatrix discernible indicative of the plantar fascia having been divided; and that only the boot, of which I have given a description, was put on after the operation. The boy had scarcely recovered from hooping-cough, and as he was only three years old, I deferred operating until Monday, the 9th August last. By division of the tendo-Achillis and plantar fascia, and the use of the apparatus which I generally employ, I have succeeded in accomplishing a perfect cure of his worst foot, the right. My uniform practice is never to cut both feet at the same time. I was consulted by a respectable farmer and his wife in January of 1856, about their son, a remarkably fine healthy boy, affected with talipes varus of his right foot, who had been also operated on when only seven months old. I told the parents that he was too young to promise success, being then only fifteen months old, an advice which seemed to amuse and surprise the parents. In this case I did not wait until the boy had completed his third year, as the child was strong and robust, and was firm on his legs. With the same treatment as in the last case I effected a perfect cure. The opinion of Drs. Little, Adams, Brodhurst, Syme, and the majority of orthopœdists is, that "four or six weeks after birth is not too early if the infant be robust." I have found all such cases, when operated upon at so early an age, have turned out failures, and these are not a few. With respect to the second objection, that the proper tendons and fasciæ have not been divided, I beg to state, that in all the failures which have come under my notice, I have never seen any trace of the fascia plantaris having been divided, but only the tendo-Achillis and tibialis anticus. Now in all these failures, the tibialis anticus had no concern in the distortion, while the fascia plantaris appeared to be more the cause of the inversion than even the tendo-Achillis. I may observe, that I have never seen any grounds whatever for dividing the tendon of the tibialis anticus. I have all along contended that the division of the plantar fascia is as indispensable as that of the tendo-Achillis.

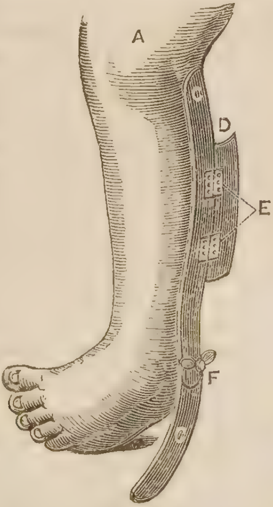
Thirdly. The proper apparatus and boot are not used after tenotomy has been performed. I have elsewhere stated that tenotomy, however dexterously performed, is totally unavailing without the constant employment and long-continued application of apparatus carefully adjusted according to circumstances from time to time, and that by the use of such means the most abnormal cases of pedal deformity, if timeously subjected to mechanical treatment, can be effectually cured. The profession is indebted to the late Messrs. Fortune, and Mr. Marshall, 20, Frederick-street, of this city, for the great improvements made by them in the apparatus which was originally invented by Scarpa and Delpech.

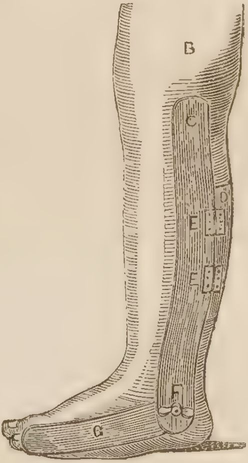
The great advantage of the apparatus is derived from the elastic springy motion which it imparts; and while it enables the patient to use the foot, it modifies and regulates all unnecessary pressure arising from the superincumbent weight of the body. I consider it superior to any represented in Mr. Bigg's excellent work "On the mechanical appliances for the treatment of Deformities."

[Although Mr. Lizars is an eminent surgeon, we think the respectable names who advocate an earlier operation will outweigh his own. When we see Syme, Little, Adams, Brodhurst, and Tamplin advocating the operation at an early period on the infant, we need not be afraid of recommending surgeons to follow their example.]—*Med. Times and Gazette, Dec.* 18, 1858, *p.* 622.

78.—NEW CLUB-FOOT INSTRUMENT.

We have lately seen a simple and ingenious apparatus for cases of infantile equino-varus, invented by Mr. Bigg, of Leicester-square. Its action will be understood by referring to the following diagram :—





The first figure (A) represents a limb in the condition of equino-varus, to the fibular surface of which the instrument is attached. C C are two pieces of narrow metal, softly padded, and furnished with an axis corresponding with the ankle-joint, and capable of being fixed at any given angle by the tightening of the thumb-screw F. The mechanical action of this apparatus is based upon the customary principle of first reducing an equino-varus to the condition of equinus, and then restoring the foot to its normal position. For this purpose it is first affixed in its extended condition (Fig. A) on the outer or fibular side of the leg, by means of a common roller bandage, which, upon being tightened, gradually brings the foot into a position of equinus. The screw F is then loosened, and the limb gradually flexed until it assumes the form represented by the second figure (B). In order to prevent the splint from turning upon the cylindrical shape of the leg, a hinged plate, D, surrounds the calf.

The mechanical principles embodied in this little instrument are the same as those employed where the common tin splint is applied, after division of the tibial tendons, and succeeded by a Scarpa shoe,

In Mr. Bigg's club-foot instrument the necessity for two separate appliances is obviated, whilst the cost, we are informed, is proportionately less. Anything which tends to simplify the treatment of deformities is of advantage to the profession. We recommend giving it a trial.—*Lancet, Dec.* 11, 1858, *p.* 609.

79.—*On the Growth of Cysts upon the Frontal Bone.* By G. M. Humphry, Esq., Surgeon to Addenbrooke's Hospital, Cambridge.—Sebaceous cysts are very frequently met with in close connection with the frontal bone, commonly just behind the external angular process, and often under cover of the temporal fascia; I have met with them occasionally upon other parts of the bone. They are, so far as I know, always congenital, though they often escape notice for some years, and I have been called upon to remove them in grown-up, and even elderly persons. If left alone they do not attain great size, and after a time, for the most part, become stationary; they lie upon the bone itself, or in such close contact with it, that it is usually necessary to expose it to effect their complete removal; I found one occupying a cup-like depression of considerable depth in its substance, which had probably been caused by the growing up of the bone around the cyst. They resemble the ordinary 'wens' in structure and contents. I know no other part of the osseous system with which cysts of this kind grow in so frequent and intimate connection.—*Treatise on the Human Skeleton, p.* 252.

ORGANS OF CIRCULATION.

80.—ON THE TREATMENT OF WOUNDS OF THE PALMAR ARCH.

By Dr. Charles D. Arnott, Gorleston.

[In hemorrhage from palmar wounds, whether primary or secondary, correctly adjusted pressure should supersede that more painful and hazardous procedure hitherto deemed requisite, viz., indirect arterial deligation. The following facts and arguments are adduced in support of the above position.]

Ligature of the larger arterial trunks is, under ordinary circumstances, an operation attended with considerable danger. The case of wound of the palmar arch which I formerly commented on, and in which ligature succeeded ligature only to complicate, and increase the danger tenfold, and eventually to entail a condition so desperate, that amputation at the shoulder-joint (surely no very trivial matter) was even beyond adoption, and mere "temporizing with the case;" in other words, hopelessly committing the patient to fate alone remained,—fully verifies my statement, and shows what, under similar circumstances, may be expected to be every now and again realized. But even were such disasters only possible, instead of, as the truth is, highly probable, it cannot be unprofitable to propose a measure safe and efficient, to take the place of one so fraught with danger.

Theory amply elucidates how pressure must be as effectual an auxiliary for the arrest of hemorrhage from palmar wounds, as arterial deligation on the cardiac aspect. All that the latter can accomplish, the former also can equally efficiently. The *modus operandi* of both is in one respect identical—namely, to modify, and lessen the impetus of, the advancing blood-wave at the wound's site, and thus to counteract the chief obstacle which nature has to encounter in perfecting her permanent hæmostatics. There are, moreover, no vessels in the body, of corresponding magnitude, more favourably situated for easy, accurate, and efficient compression than those of the forearm and arm. Any one may practically verify this assertion on his own person, and the surprise will be, how slight and bearable an amount of compressing power is required to arrest the arterial current, and annihilate the cardiac impulse on the distal aspect of the obstructing force. Weakening of the circulation in the wounded part is then all that can be effected by either measure, and all that is really required. The only existing difference is, that by the one this may be accomplished simply and safely; by the other, only at considerable risk.

The general principles to be followed in the application of pressure as a hæmostatic, under ordinary circumstances, are pretty well understood. It must be accurate, not unduly severe, and steadily maintained. The graduated compress affords the most effectual mode for its employment. The limb is first uniformly bandaged from below up to the wound; the compress is then applied piece by piece, the smallest first, accurately in contact with the bleeding point; over this another and another, gradually increasing in size, so as to give the whole a conical form, and to fill the wound completely; the last, the largest, above the level of the wound. Over this the bandage is continued, keeping all correctly adjusted. In the minor forms of hemorrhage, where this mode of treatment is specially suited, pressure thus applied generally proves efficient.

But when pressure has to be adopted under more formidable conditions, some modifications to this, the ordinary mode of its application, are indispensable; for example, in the case of wound of the palmar arch, we have not mere capillary oozing, or an insignificant arterial jet or two to contend with, but blood rushing copiously, and with some impetus, from a vessel of considerable size, unfavourably situated for the occurrence of natural hæmostatics. If pressure, as ordinarily applied, were under such circumstances adopted, it must (in order to prove effectual) be dangerously severe, and by this one element alone defeat itself. We have here a true illustration of the benefits to be obtained by a judicious division of labour. Compression at the wound's site cannot be relied on solely; but *indirect arterial compression* must be adopted as an adjuvant to mitigate the force of the circulation at the wound. This effected, all that theory would predicate, experience proves correct; hemorrhage is thus readily restrainable, and the most favourable chance for reparation of the wounded vessel afforded, without incurring any danger.

In adjusting the compress at the wound, it is of primary importance that it be placed in a *dry bed*. The nitrate of silver admirably assists in carrying out this paramount indication. The wound is to be lightly pencilled over with this substance. Its effect is to constringe to some extent the divided vessels, and, what is of more consequence, to form instantaneously a coagulated and adherent film or pellicle upon the surface of the wound, highly advantageous in allowing the deeper portions of the compress to be accurately and drily applied.

The surgical treatment required for the arrest of hemorrhage from wounds of the palmar arch may be briefly summed up. It consists in bandaging the fingers separately, continuing upwards to the wound, accurately adjusting the graduated compress at the wound in a dry bed, with the aid of the nitrate of silver, and applying slowing compression to radial and ulnar, or brachial arteries, according to convenience. It will be found, under all circumstances, efficient in controlling bleeding, and immeasurably preferable to indirect arterial deligation, inasmuch as it is free from danger. I shall append a case or two confirmatory of its efficiency.

Case 1. J. W., aged fifty-eight, fell upon an iron-toothed rake, inflicting two comparatively unimportant punctures in the palm, of no great depth. About a teaspoonful of blood was lost at the time. Two days afterwards, throbbing pain, heat, redness, and swelling supervened in the part, the man became restless and thirsty, and exhibited all the indications of smart febrile accession. The bowels were sluggish. Poulticing and frequent fomentation of the hand were recommended, some laxative medicine administered, and the necessary restrictions as to rest of the part, diet, &c., enforced. For two days the symptoms were, in no degree, mitigated. The patient's suffering was extreme. At the end of the sixth day after the accident, an abscess was detected in the palm, and evacuated. There was no bleeding of any moment; and what there was, ceased before the dressing was completed. Next morning, the suffering was somewhat appeased; there was pretty profuse discharge, and all seemed going on satisfactorily. In the evening, I was hastily summoned, the patient being, according to the messenger's account, "bleeding to death." Upon my arrival, the man lay on the floor, deluged in blood. I found that he had fainted, but, with a little attention, he soon came round. The hand, in the dilemma, had been swathed with a number of incongruous appliances—towels, stockings, handkerchiefs, and a tablecloth. These were removed, and a tourniquet was adjusted. The wound was cleaned and examined. Ulceration had been, undoubtedly, going on. There was a large boggy cavity, and the evacuating incision, which the abscess had required, was quite inadequate for the purpose of exploration. I enlarged the opening, but could not detect any bleeding point. As soon as the tourniquet was slackened, blood welled copiously into the cavity, obscuring everything. One or more arterial branches, of some calibre, had been opened into.

I applied a graduated compress to the wound in the ordinary way, and was about to leave the house, but was re-called by the patient telling me the blood was coming through the dressing. It soon began to drop on the floor briskly. I re-applied the tourniquet, undid the wound, did it up afresh more effectually, and waited half an hour without further hemorrhage occurring. He passed the night pretty comfortably. Next morning, at eight o'clock, the bleeding recurred. The case now assumed a serious aspect, and something summary was needed. Ligature of the brachial I had been taught to regard as the "one thing needful;" and I accordingly proposed and explained it. My patient had a great horror of the knife, and declared that he would rather die than submit. It then occurred to me to attempt obstruction of the radial and ulnar trunks by compression. My views were stated, and cheerfully acceded to. The fingers were accurately bandaged, the wound filled with the graduated compress, and the radial and ulnar arteries obstructed by continuing the bandage upwards, and adjusting over them two halves of a phial-cork, covered with lint. The tourniquet was gradually loosened, but retained ready for immediate re-application. All hemorrhage from that time forth was completely controlled. The slowing compresses were removed four days subsequently, and the entire bandaging at the end of the week. In two days more, the compress in the wound became loosened with the discharge, and was extruded. Cicatrization advanced satisfactorily, and the wound healed without a bad symptom. The patient declared that the last and efficient treatment was by far the most comfortable, and that it was not productive of anything like so much tension and discomfort as when the one compress in the wound was only used.

Remarks.—This is a complete type of the majority of cases of secondary hemorrhage from palmar wounds, in which deligation of the arterial trunks, on the cardiac aspect, is regarded as indispensable and inevitable. It forcibly supports the conclusion, that this class of cases is amenable to the simpler treatment by distributed pressure.

Case 2. W. P., aged twenty-eight, sustained a deeply-incised wound of the palm of the right hand while in the act of mending a broken window. It extended obliquely from the ball of the thumb to within half an inch of the base of the little finger, Hemorrhage was immediate and brisk, issuing in a jet, according to the patient's statement, a distance of five or six yards. The man was very much alarmed, and fainted. The wound was dressed by a shipwright, an authority in such matters. His mode of proceeding was simple. The cavity of the wound was first plugged with chewed tobacco, and this was surmounted and kept *in situ* by a binding of oakum firmly applied. Hemorrhage was thus arrested. In the course of a few hours, the swelling and engorgement of the parts below the constriction became almost intolerable. Two days afterwards the wound became hot, throbbing, and painful; the whole hand swelled enormously, and general suffering so extreme supervened, that the unfortunate man at last sought my advice.

The plug of tobacco was hard and tightly adherent. I removed it, after soaking with warm water, piece by piece. During this procedure I opened a pent-up collection of pus, with which escaped a triangular fragment of glass of some size, and, before getting out the last of the plug, hemorrhage came on, which filled the wound instantly on the removal of the sponge. The palmar arch had evidently been wounded, and the vessel was still open. I applied the tourniquet, sponged out the wound, and sought carefully for the wounded vessel. The textures were so changed that I could not detect any with certainty. The fingers were now separately bandaged, and the separate ends affixed to a wider roller, which was to be continued over the wound, and as far up the arm as might be necessary. The wound was sponged out as drily as possible, and lightly touched with the nitrate of silver. The compress was accurately adjusted in the wound, and secured by a turn or two of the roller; the slowing compresses (again consisting of two halves of a phial-cork covered with lint) were then applied, and kept *in situ* by a turn or two of the bandage. The tourniquet was gradually slackened, and the effect watched. The hemorrhage was now completely arrested, and the man soon felt quite comfortable, at at once admitting the great superiority in the style of dressing.

Next day, in consequence of considerable subsidence of inflammatory swelling, the whole apparatus was becoming loose. There was, however, no return of bleeding, which was certainly rather remarkable. I put on an additional roller to re-secure the former appliances. All went on well. Four days subsequently, the apparatus again becoming loose, I thought it might be safely removed. I did so, leaving the compress gradually to work its own way out of the wound as it might become loosened by the discharges. The swelling of the hand had materially abated. Two deep indentations existed at the site of the slowing compressors. Pus was oozing from the wound, but there was not even a stain of blood. The wound was treated with simple warm-water dressing, and injunctions were given, in case of recurrence of hemorrhage, to keep a sponge firmly pressed upon the bleeding point until my arrival. Not a single bad symptom presented itself afterwards, and the man steadily recovered.

Case 3. J. C., aged seventeen, mariner's apprentice. While descending the hold at sea, a heavy stanchion which served as a hand-rail gave way, and he, with it, fell upon the ballast in the bottom of the vessel, a distance of several feet. His right hand was crushed between the stanchion and a large angular piece of chalk. The metacarpal bones of the middle and ring fingers were fractured, and a severe contused and lacerated wound of the palm was inflicted. No bleeding of consequence occurred at the time. The hand was rolled up by some of the lad's comrades, and he remained at sea two days. Upon my seeing him, I recommended water-dressing, and a splint to be applied at the back of the hand. The case progressed favourably for three days, when some constitutional disturbance showed itself, the hand inflamed, swelled immensely, and the palm became infiltrated with pus. During the night brisk hemorrhage occurred, which soaked the bed-clothes and rendered the lad quite faint. I was sent for, and attended immediately. The bleeding was still continuing, welling out freely from a most unhealthy-looking wound. The brachial was compressed with a tourniquet, as an immediate step; the wound was wiped out clean, and explored carefully to detect, if possible, the bleeding point, but it could not be found. The case looked as unpromising a one to treat by compression as could well be conceived, from the enormous tumefaction and apparent intolerance of pressure which must have existed. I determined, however, on its adoption, and applied it in the usual way. No tightness was really required; the dressing was in every respect comfortable, the hemorrhage perfectly controlled, and *not one drop more blood was lost.* The dressings were removed in two days; the plug separated with the discharge; and in about a fortnight the wound healed. The fractured bones became consolidated; and, with the exception of a little bulging at the back, and stiffness of the fingers, which will eventually pass off, the cure is complete.

Remarks.—The special question connected with this subject requiring consideration is, Will this mode of treatment avail in all cases of wound of the palmar arch? In order to discuss this conveniently, I shall offer a few observations upon *primary* and *secondary* hemorrhage from palmar wounds, and note its application to each of these separately.

Liston says, that in cases of primary hemorrhage, "instead of trusting to pressure, which is not always well or efficiently applied, almost uniformly disappoints expectation, and leads to a severe form of inflammatory action, it is better at once to enlarge the wound, and tie the wounded vessel above and below the wounded part." This is undoubtedly true as regards hemorrhage from arterial wounds generally, and considered in connexion with the ill effects resulting from that injudicious form of pressure adopted in the cases under special notice, had the greater weight, and recommended itself all the more forcibly; but if it can be shown that, by a simple modification, no violent pressure at the wound is necessary, and consequently that all this apprehended danger may be avoided, the argument does not apply. I am certain it may be laid down as a surgical axiom that in all cases of uncomplicated primary hemorrhage from the palm, exploration for the wounded vessel, if requiring any incisions of severity, or painful dissection, is entirely unnecessary; compression of the arterial trunks on the cardiac aspect can be easily and effectually applied, and the slightest amount only of pressure is requisite at the wound to control the hemorrhage completely.

Cases of *secondary hemorrhage* are those in which this mode of treatment would perhaps be expected more frequently to fail. Liston says of such, "The main artery is to be obstructed at a distance from the wounded part," and this expresses the prevalent and generally entertained opinion. The mode of carrying out this indication which immediately presented itself to Liston's mind as most easy and effectual was that by deligation of the brachial. We have seen that this practice is unwarrantably severe and highly hazardous, and further, that it is unnecessary, inasmuch as all that it can accomplish may be obtained by simpler and safer means. But it may be urged that under many circumstances of this kind there is great intolerance of pressure, and that it thus may fail. This is a mere chimera and in practice will not occur. The pressure required, in consequence of being subdivided, is really so slight in degree, the points for applying it capable of being so variously chosen, and easily shifted, that it need never be productive even of any discomfort. I unhesitatingly affirm, that the practice proposed will be found completely effectual in this whole class of cases, and feel assured that it will, however objectionable it may be to the cultivators of ostentatious surgery, eventually entirely supersede the harsher and more dangerous practice of deligation.—*Lancet, Oct.* 30, 1858, *p.* 445.

81.—POPLITEAL ANEURISM TREATED BY COMPRESSION AND MANIPULATION.

Under the care of Thomas P. Teale, Esq., Surgeon to the Leeds General Infirmary.

[The patient was a labouring man, aged 48. The aneurism had existed three months. On admission the tumour was the size of a small lemon, and exhibited all the usual signs of aneurism. At first digital, and subsequently instrumental pressure was used, but with no decided effect. Mr. Teale, on the 14th of November, manipulated the tumour freely, kneading it in various directions. In an hour and a half it had ceased to pulsate, and had become a solid mass. On the 26th he left the hospital cured. In his observations upon this case to the students, Mr. Teale observed :]

But let me guard you against adopting this practice in aneurism of the carotids or of the innominate artery ; or, in other words, in aneurism of arteries leading to the brain. In such cases you might run the risk of detaching small portions of fibrine, which being carried along the current of blood to the brain might then produce the serious mischief of that organ, and the consequent paralytic affections described by Dr. Kirkes in a paper of great value published in the 'Medico-Chirurgical Transactions' for 1854. And this is not a mere speculative evil, as you will perceive from the following case which I will briefly notice, and which I regret has not been published in an extended form. In the year 1847 I was one of a numerous consultation on a doubtful case of carotid aneurism. The subject of it was a middle-aged female, in good health in other respects. She was seated in a chair while the tumour was examined by several persons in succession, and subjected by them to repeated handling and compression. While this was going on, she suddenly became pale and slipped off the chair. On being raised she was found to be hemiplegic. After lingering in this state for a few weeks she died. The tumour was found, after death, to be aneurismal. It was not, however, until I read the paper by Dr. Kirkes, that I fully appreciated the pathological bearings of this case. Now that we do understand it, let me urge upon you to bear it in your minds, and let it be a warning to you, in carrying out Mr. Fergusson's valuable suggestion, to limit the treatment by manipulation of the tumour to aneurism of the extremities. I may also add that, in one of the two cases of aneurism of the subclavian artery, which are published by Mr. Fergusson, hemiplegia occurred very shortly after manipulation. It is not improbable that the aneurism in this case extended to the innominate artery. Mr. Fergusson alludes to the possibility of the hemiplegia being produced in the manner explained by Dr. Kirkes.—*Med. Times and Gazette, March* 12, 1859, *p.* 265.

82.—VARICOSE VEINS TREATED BY INJECTIONS OF PERCHLORIDE OF IRON.

By PROF. ERICHSEN.

We saw two cases of varicose of a somewhat uncommon character, from the circumstance of their being situated principally in the popliteal space, and of great size—one of them, however, was treated simply by ligature in the usual way, as there was no great difficulty in passing the pins underneath. In this case the enlarged veins commenced at the upper and outer side of the popliteal space and extended downwards and inwards for about four inches, the breadth of the enlargement being about an inch. On the inner side of the calf of the leg, again, there was a similar mass of enlarged veins, appearing as if a continuation of the first in a spiral direction round the leg, although there was a space of about two inches intervening, which appeared comparatively unaffected. The man experienced great inconvenience from the condition of the leg, which prevented his walking or working with any degree of comfort, and he was therefore most anxious to be relieved by operation. Mr. Erichsen passed two pins under each plexus, and tied them in the usual way, which he thought would have the effect of obliterating them, and so rid the patient of a most troublesome disease.

The second case was such as is rarely seen: the mass of enlarged veins was situated also in the popliteal space, extending upwards and inwards for a distance of about three inches. When the patient was placed on the operating table, the mass in the ham was apparently about the size of the half of an orange, and the portion which extended upwards was nearly as broad as three fingers. It was stated that when the man used any exertion, or remained in the standing posture for any time, the tumour in the ham became as large as a man's fist.

In this case Mr. Erichsen passed a pin under the upper extremity of the tumour, and tied it in the usual way; he then injected the parts below with a solution of the perchloride of iron, by means of a small French syringe, the piston of which is worked by means of a screw, every turn of which causes a drop of the liquid to exude, and therefore the operator can know exactly how much is injected. Mr. Erichson introduced the point of the syringe in several places where the veins appeared largest, and injected two or three drops of the solution in each place; he found it necessary to make a puncture with a small trocar, in order to introduce the point of the syringe, the integument being very tough; the point of it, however, is made sharp and is intended to penetrate the integuments without any puncture being previously made. This, however, is not always to be accomplished, and we remember to have seen Mr. Erichsen break one of them on a former occasion while trying to introduce it into a large bronchocele, which he injected in a similar way.

It is thought that in the present case the perchloride of iron will have the effect of coagulating the blood in the enlarged veins and thus cause their obliteration.—*Med. Circular, Oct.* 20, 1858, *p.* 182.

83.—ON NÆVUS.

By John Erichsen, Esq., Professor of Surgery in University College, and Surgeon to the Hospital.

Nævus is, perhaps, the most common congenital malformation or disease requiring surgical interference, and probably the most frequent cause of operations on young children. The methods adopted by surgeons for the removal of this affection are very varied; but however much they may differ in detail, they are all referrible in their mode of action to one of three principles. 1. Those means, such as the seton, subcutaneous section, vaccination, and the injection of various astringents, which act by exciting inflammation, and eventually induce plugging and obliteration of the vascular network that constitutes the nævus. 2. Caustics, the electric and the actual cautery, which act by destroying the morbid structure. And, 3. Its removal by means of the knife or ligature. Now it is not my intention to enter upon a general description of these different methods of treatment, but my object is to endeavour to point out how they require to be modified according to the situation and nature of the nævoid growth. Instead, therefore, of discussing those *principles of treatment* which are applicable to nævus generally, I will endeavour to render the subject more simple and practical by bringing cases and observations illustrative of the treatment of nævus, according to the region it occupies.

Nævi of the Scalp are more frequent than in any other situation, except, perhaps the face. When occurring on those parts that are covered by hair, they are almost invariably prominent and subcutaneous ; when seated on the forehead, or on the bare skin behind the ears, they are often cutaneous. The ordinary subcutaneous nævus of the scalp is readily removed by the application of the quadruple ligature. In performing this little operation, it often becomes a question as to whether any of the integument covering the growth should be preserved. In general, I think it better not to attempt its preservation. It is true that when removed, a clean white cicatrix is left which never covers itself with hair ; but this contracts, and in after-life becomes but little visible. If you attempt to dissect down the skin that covers the nævus, you will find the operation not only troublesome, but attended by a very considerable, and possibly a dangerous amount of hemorrhage. Those flat nævi that are situated behind the ear are here treated, as in the case at present under my care, by the free application of the fuming nitric acid.

Nævus of the Fontanelle is the most important variety of the scalp nævus, and constitutes a somewhat formidable disease. You see, as in the case of a child nine months old which we lately treated, a large purple tumour situated within the anterior fontanelle, rising and falling by the pulsations of the brain communicated to it, and becoming distended and tense when the child cries. The tumour is evidently close upon the membranes of the brain, and may be looked upon almost as an intracranial rather than a scalp tumour. The close proximity of the tumour to the brain and its membranes often deters practitioners from interfering with it ; and I not unfrequently see cases in which the parents of the child have been counselled not allow any operation to be practised, lest death should result. But yet this tumour, so formidable in appearance, and so deeply seated, close upon the brain, and as it were within the cranium, may be removed with the most perfect safety by the ligature, if you know how to apply it. I have often tied nævi in this situation, and have never seen any ill consequences, nor even a convulsive fit, occur. The danger, then, from the mere strangulation of the tumour in this situation cannot be great; but there is another and a special danger, viz., the risk of wounding the membranes of the brain in passing the ligatures under the base of the tumour. Now I need scarcely say, that if you use nœvus-needles, or sharp pointed instruments of any kind, this accident would be very likely to occur; you could not tell whether or not, in dipping down the needle, you had included a portion of the dura mater; and, if this were to happen, inevitably fatal consequences must ensue. However, this accident may always be avoided by operating as you lately saw me do in the case of a child eight weeks old, with a large purple nævus in the anterior fontanelle. A puncture was made in front of the tumour through the healthy scalp. An eyed probe armed with a double ligature, was then pushed through this opening across the base of the tumour, and its end made to project on the opposite side beyond it; here another puncture was made, and the probe and ligature together were drawn through. The same procedure was adopted across the tumour sideways. In this way, a quadruple ligature was passed across the tumour in two opposite directions; the ends were then disengaged, and the ligature tightened in the ordinary way. Complete strangulation ensued, and the child was well in a fortnight, without a bad symptom.

Nœvi of the Face are of very common occurrence, and usually cause so much disfigurement that their removal by surgical means requires to be undertaken whenever it is practicable. The treatment to be adopted necessarily varies greatly, according to the nature of the nævus, whether cutaneous, subcutaneous, or both, and especially according to its situation. The same plan, which may be advantageously adopted in one part, being altogether inapplicable in another. We shall, accordingly, consider the treatment of these vascular growths, as they effect the eyelids, the nose, the cheeks, and the lips.

Nœvus of the Eyelids is usually cutaneous, consisting of a discoloration or staining as it were, of the lid, without any material swelling of it. Such a disease is, I think, better left untouched; it cannot, of course, be removed either by the knife or caustics, without producing worse results; and, as the skin is always deeply involved, milder means are inoperative, or possibly equally destructive. I have heard of sloughing of the eyelid being occasioned by the use of astringent injections in such cases; though if the nævus were subcutaneous, and constituted a distinct tumour, passing perhaps into the orbit, injection with the perchloride of iron might advantageously be adopted.

Nœvus of the Nose may occur in two situations—at the root, or towards the alæ and apex. When seated at the root of the nose, upon the bridge, or at the lower part of the forehead, between and perhaps extending above the eyebrows, it is often subcutaneous, and may attain a very considerable magnitude. In such cases as these, I have found the quadruple ligature the readiest means of removal; and, although the part included may be of large size, you will find that the resulting cicatrix is wonderfully small and narrow, usually becoming horizontal, so as to fall into the folds of skin naturally existing in that situation. In the case of a little girl about three years of age, brought to me last autumn by my friend Dr. Gerber, I removed a nævus that was cutaneous as well as subcutaneous, and as large as a walnut, from this situation, by means of the quadruple ligature, with most satisfactory result, the resulting cicatrix being remarkably small; and you have lately had an opportunity of seeing in a little girl, from the bridge of whose nose I removed, about a year ago, a nævus as large as a marble, how little scarring or deformity results. In both these cases, the nævus was cutaneous as well as subcutaneous. If the skin is not affected, then injection with the perchloride of iron may be advantageously employed in such cases. When the tip and alæ of the nose are affected, the nævus being cutaneous, we can seldom do much to improve the appearance of the patient. In such cases, I have tried breaking down the nævus, the use of injections, and the galvanic cautery, without any material benefit.

Nævi of the Cheeks may occur in three distinct forms—1. As a simple cutaneous nævus, a mere staining of the skin, "a mother's mark." This admits of no treatment, and the subject of it must submit to continue through life to exhibit the characteristic discoloration. 2. The elevated cutaneous nævus, raised above the surface, and of a deep purplish red or plum colour, covered with a very thin integument. In this form of the disease, I think that the application of the concentrated nitric acid is the best means of extirpation. By one or two free applications of the caustic, the nævoid growth is removed, and a dense white cicatrix, presenting little disfigurement, is left in its place. 3. The nævus may involve the whole thickness of the cheek, being scarcely, if at all, cutaneous. Such nævi as these cannot, of course, be extirpated, either by the knife, ligature, or caustics, lest the cheek be perforated, and the most serious disfigurement ensue. In such cases as these, we must endeavour to obliterate the structure of the nævus by exciting inflammation in it by means of setons, or by breaking down the structure of the growth with cataract-needles, or a fine tenotome. In a case which I attended some years ago, with my friend Mr. Bartlett of Notting Hill, a large and deep seated nævoid growth, which occupied one cheek, was cured by having a number of fine silk threads passed across it in different directions, and then gradually, piece by piece, being broken down with a cataract-needle, no disfigurement whatever being left.

Nævi of the Lips require different treatment, according as they occupy the margin or have involved the whole substance of these parts. When seated at the margin, as projecting and somewhat pendulous growths, they may very readily be removed by a double or quadruple ligature, according to their size: but when they involve the whole thickness of the lip, such measures as these are not available. If deeply invading the substance of the lip, an operation similar to that for the removal of a cancroid growth might be practised, the whole substance of the lip cut through widely on either side of the disease, and the incisions, brought together with hare-lip pins. Such an operation is only practicable when the disease, though deeply seated, does not spread to any very great extent laterally. When it does, the whole of one-half of the lip, for instance, being involved, the use of the knife, especially in young infants, would be too hazardous, on account of the probability of serious hemorrhage; and other means must be had recourse to. I have tried the use of setons, and of injections with the perchloride of iron; but not with any advantage. When the whole substance of the lip is involved, inclusion and strangulation of the morbid mass by means of the ligature is seldom available; the amount of sloughing being very great, and the child, absorbing the putrescent matters from the sloughy mass which results incurring the danger of being poisoned from this source. In an infant with a very large nævus including one-half of the lip, and which I ligatured at the hospital some years ago, death appeared to result from this cause. One of the most formidable, and in its results the most satisfactory case of nævus of the lip that I have ever had to do with, was sent to me about three years and a half ago, by Dr. Budd of Barnstaple. The patient, a little girl five months old, was noticed at birth to have a red streak on the right side of the upper lip; this rapidly developed into a large tumid purple nævus, which, when the case came under my observation, was about the size of a large walnut, involving the whole of the structures of the lip, from the cutaneous, to the mucous surfaces: it was of a deep mulberry colour, and extended from the median line of the lip to the angle of the mouth. The integuments covering this growth were exceedingly thin, and the tumour itself in the highest degree vascular and active. What course was to be adopted in eradicating such a tumour as this? Excision appeared to be out of the question, on account of the extent of tissue involved, the early age of the child, and the probability of profuse and possibly fatal hemorrhage. The ligature, from the experience I had in a similar case, presented little to recommend it. Injections with the perchloride of iron and the introduction of setons were successfully tried, but neither of these means produced any effect on the tumour, which commenced to extend upwards into the nostril. I accordingly determined on using caustics. Nitric acid was first employed; but, as this did not produce sufficiently deep impression on the growth, I had recourse to the potassa cum calce. By means of this powerful escharotic, the tumour was gradually removed; the hemorrhage which occasionally resulted being restrained by pressure. Notwithstanding the amount of tissue destroyed, the resulting cicatrix was small, resembling that of a badly united hare-lip. I advised the parents to leave this for some years, and then, if it had not materially improved, proposed to excise it, and bring the opposite sound edges together by a hare-lip operation. A few weeks ago, the child was brought to me again, and I was much struck by the wonderful improvement that had taken place during the three years that had elapsed since the removal of the nævus. The lip is smooth, the cicatrix in a great degree worn out, and comparatively little disfigurement is left in the countenance of an exceedingly pretty and engaging child. Finding, however, that the lip was still drawn or tucked in by a very dense band of cicatricial tissue, which caused a depression of the ala on that side, I divided this, and the result has been of the most satisfactory character.

Nævi on the Organs of Generation are occasionally met with in the female, but rarely in the male. The only instance of *nævus on the penis* that I have met with occurred in the case of a gentleman thirty-two years of age, who consulted me about three years ago for a growth of this kind, as large as a walnut, situated under the reflexion of the preputial mucous membrane. It had existed for many years without giving any annoyance, but, having of late begun to enlarge, and occasionally to bleed, he was desirous to have it removed. This I did by applying the quadruple ligature, after having dissected down the mucous membrane. *Nævi of the vulva and pudendum* are by no means of very unfrequent occurrence. We have had several instances of this kind in the hospital of late years. They are usually of a venous character, often attain a large size, and may sometimes involve the integumental structures on the inside of the thigh, or on the perineum, as well as the vulva. When the growth is confined to the vulva, it is best removed by the ligature. Some time ago, I removed in this way a large venous pendulous nævus, as large as two or three flattened walnuts, from the left labium of a little girl six years of age. In this case, I found it most convenient to employ the continuous ligature. The same means were had recourse to in order to extirpate a large nævus from the labium of a child three years of age; but in this case the disease extended to the integuments of the perineum and inner side of the thigh, and was here removed by the application of strong nitric acid, after the larger growth had separated.

On *the Extremities, Neck, and Trunk*, every possible variety of nævus occurs. When the disease is flat, consisting rather of staining of the skin than of any actual tumour, it may commonly be treated successfully by the application of the strong tincture of iodine; or, should it be thought desirable to remove it, this may be effected by rubbing it with strong nitric acid. If the nævus assume the form of a tumour, it will almost invariably be of a venous character, and then removal by means of the ligature should be effected. If the growth is round, the ordinary quadruple ligature may be employed; if flat or elongated, the longitudinal continuous ligature is preferable.

Nœvoid Lipoma. Before concluding, I would draw your attention to a form of nævus that I have occasionally met with, but which does not appear to have attracted much notice, although I find that M. Nélaton speaks of it: I mean a tumour in which the nævoid structure is conjoined with or deposited in a cellulo-fatty mass—a kind of "nævoid lipoma," in fact. I have seen several cases of this disease, which has invariably been seated upon the nates, back, or thigh. It occurs as a smooth, doughy, indolent tumour, incompressible, not varying in size or shape, without heat, thrill, or pulsation of any kind, possibly having a few veins ramifying over its surface, but no distinct vascular appearance. It is usually congenital, or has been noticed in early childhood; and continues without any very material change in shape, size, or appearance, until the inconvenience or deformity occasioned by it requires its removal. This is best effected by the knife. After removal, the tumour will be found to be composed of a cellulo-adipose basis, having a large number of veins ramifying through it, so as to constitute a distinct vascular element, communicating with small cysts containing a bloody fluid. The situation in which I have seen such tumours occur, where they gave rise to most inconvenience, and where their removal has required the greatest care, has been the anterior part of the thigh, just below Poupart's ligament, close upon and almost in connexion with the femoral vessels. In a case of this description, which was sent to me last autumn by my friend Dr. Edwards, of Antigua, the patient, a gentleman of that island, had suffered from a chronic solid œdema of one of his legs for some years, apparently dependent upon the pressure that was exercised upon the saphena and femoral veins by an elongated indolent tumour just below Poupart's ligament, and over the course of these vessels. This tumour had existed from childhood, and presented the signs that have just been given as characteristic of the disease under consideration. It was removed by an incision parellel to Poupart's ligament, some careful dissection being required to separate it from the femoral sheath, more particularly towards the inner side, where a prolongation of the tumour dipped down by the side of the femoral vein, doubtless compressing that vessel, and so disposing to the occurrence of the œdema of the limb. After removal, the tumour was found to consist of a mass of condensed cellulo-adipose tissue, with much vascular structure intermixed, and some small cysts. The œdema gradually subsided, and when the patient left England, about three months after the operation, the limb had nearly regained its normal size, being but little larger than the sound one.—*Brit. Med. Journal, Oct.* 16, 1858, *p.* 869.

84.—CASE OF LARGE ARTERIAL NÆVUS OF THE HEAD.

By W. Colles, Esq., Dublin.

The patient is about 18 years of age. When admitted into Steevens' Hospital, the integuments on the right side of the head were elevated very considerably above the natural level; the swelling occupied the entire of the parietal bone, and measured six inches from before backwards, and about four from above downwards; in front, it is raised about half an inch above the surrounding parts, while posteriorly and towards the vertex the projection exceeds an inch in height. The entire surface is of a dusky red hue; a great number of minute tortuous vessels may be very readily seen running on the surface; interspersed are several small ulcerated spots, about the size of a split pea, and one larger ulcer on the top of the most prominent portion of the tumour. These ulcers generally discharge a thin watery fluid; but at times a profuse bleeding occurs from one or more of these ulcers; any sudden exertion, even the act of stooping, may give rise to it; removing the dressings was always attended with considerable loss of blood, and at times it would occur when the patient was perfectly quiet, without any assignable cause. He has frequently been wakened from his sleep, and found his pillow deluged with blood; this hemorrhage frequently produced syncope, and at times was with difficulty arrested.

On watching one of those ulcers we could at times observe a small ash-coloured sloughy point protrude; a drop of blood would ooze from the edge of this, and be followed by a stream of bright red blood, which would come, not in jerks, but more in waves.

On applying pressure to the tumour, if moderate, a slight thrill, synchronous with the pulse, might be perceived; if strong, it would cause a gradual sinking or emptying of the tumour, which would fill and rise again, on removing it; no decided bruit could be heard by the stethoscope. Several large and tortuous arteries, generally about the size of the radial, could be felt going to the tumour. We could distinctly trace on each side the temporal, occipital, and auricular arteries.

He states that at his birth a small tumour was observed in the head; this gradually increased, and began to bleed. He has spent much of his life in seeking relief, and has undergone many plans of treatment. Fifteen years ago, pressure was fully and fairly tried; about ten or twelve years ago, the posterior-auris artery was tied; on this failing, the carotid artery was ligatured, both operations affording only temporary relief.

He is much exhausted by the continued drain on his system, and is in constant dread lest the next hemorrhage may prove fatal.

The first and most plausible plan of checking these hemorrhages, and arresting the growth of the tumour, was to cut off the supply of blood, by tying these six arteries at one time. As they were evidently in an abnormal condition, and very large, I did not like to adopt the tedious and dangerous plan of dissecting and ligaturing each. I therefore resolved to arrest them by a needle under each, and thread twisted over it; these I applied at the edge of the hairy scalp, as being far from the most diseased portion of the vessel, and as less likely to be followed by a second hemorrhage; these were at first very inconvenient on his lying down, but gave little or no pain; they entirely arrested the flow of blood through the vessels. The bleeding for the first week was much moderated, but it again returned, and on examination, we found the pulsation had returned in the arteries below the ligature and tumour, thereby showing that there was a supply of blood going to the tumour, independent of those vessels; and the free anastomosis allowed the current of blood again to fill those which we had tied. I therefore determined to try to more effectually to cut off the supply of blood. I for this purpose passed a number of needles, each three inches long, close to the tumour, the entrance of one anterior to the exit of the preceding, so as to leave no possible space through which an artery could pass. I twisted a strong ligature firmly round each needle, separately, so as to strangle all parts above it; I used fourteen needles to complete the circuit of the tumour; the needles previously passed under the arteries remained in for three weeks before they caused ulceration and were removed; those near the tumour remained in for upwards of six weeks, without cutting out or causing much ulceration or inflammation. Soon after passing the needles, the centre most prominent portion of the tumour began to ulcerate; the ulceration however we were gratified to find was not attended with any hemorrhage, and soon put on a healthy aspect. Finding this plan of treatment so far successful, I thought we might now act more on the diseased part itself, having less dread of hemorrhage. I therefore passed a seton of silk across the tumour, and another at right angles; these remained in four weeks, but did not excite any inflammation; I therefore drew them out and soon after passed worsted threads steeped in sulphate of copper solution, in the same place; these seemed also inefficacious. After allowing them to remain in for four weeks, I endeavoured to remove them, but the threads broke off close to the tumour; however, in about two weeks after inflammation and suppuration supervened, and on giving exit to the abscess, the ligatures appeared and were removed. Each trajet of the seton led to the central abscess under the prominent part of the tumour; these were constantly injected with nitrate of silver, or sulphate of iron solution, and at times, a solid stick of caustic potass was passed along them to keep up the inflammation, and to endeavour to consolidate the diseased structure. As the superficial ulcer began to close, and there was no return of bleeding, the ligatures were all removed. After four months all treatment was laid aside; the anterior portion of the tumour became firm and healed, but no hair grows on it: posteriorly there is some elevation, but giving every prospect of consolidation and cure.

In this case there were some considerations interesting to the surgeon. The size of the tumour precluded any idea of removing the entire by knife, caustic, or ligature, as the immense size of the surface left exposed could not be expected to cicatrize, and would, most probably, be attended with affection of the bone, or even of the internal parts. From the nature of the tumour we could not also determine how far the disease might have implicated the bone, or formed communication and be fed from the vessels on the dura mater, as we know has been observed in cases nearly similar. However, our efforts were at first directed to the parts surrounding the disease; and not until these had failed should we have acted on the diseased structure.

It is very remarkable in this case the slowness of the parts to undergo the process of inflammation; the needles and seton remained in some nearly two months, and had then to be removed. It would be useful to find if such an insensibility to stimulating agents were generally observed in such form of disease, as it would have much influence in directing the surgical treatment.—*Dub. Hospital Gazette, Nov.* 15, 1858, *p.* 346.

85.—ON THE TREATMENT OF NÆVUS.

By J. C. Wordsworth, Esq., Assistant-Surgeon to the London Hospital.

[Mr. Wordsworth thinks that there are many cases of nævus which might cure themselves spontaneously, if left alone long enough: but the fault is that neither patient nor surgeon has patience enough to let nature have a chance.]

It seldom happens that a month passes without some instances of nævus occurring in the practice of the hospitals to which I am attached, and I generally find that the friends of the patients are fully prepared for operations, as a matter of course. When a nævus is placed on one of its favourite localities, such as the scalp or face, the common impression appears to be that it must necessarily spread, and that therefore the sooner it is submitted to operation the better.

But let us see what is likely to become of the tumour if it escape the zeal of the surgeon.

It will be found that there is not always so much need of precipitancy as some would have us suppose. For some time, perhaps a few weeks, the nævus will continue to grow, rather rapidly for a time, afterwards more slowly; till it acquires the magnitude of a penny piece. It then ceases to grow, usually; but sometimes acquires a much larger size. It has usually a well-defined limit, which is seldom much exceeded. If of the simple *cutaneous* variety, it may become the seat of eczema, or of superficial ulceration, spreading in all directions. This may be its condition for some months, and it then gradually ceases and cicatrisation occurs. Scarcely a trace of tumour may be seen; over its site, if on the scalp, hair grows, of a darker colour, coarser texture, and more thickly set than elsewhere. This is a common course for the tumour to take. In a second series of cases, I have found the cutaneous nævus grow to a certain limit, then dwindle and degenerate, so as to leave a pale and scarred surface with little or no remnants of its vascular elements apparent. In a third class, the nævus grows to the limit above-named, and then ceases to increase; the vessels remain permanently, and it forms a more or less elevated tumour, of a dark red or purple colour, on which hair may grow, but usually only scantily.

In the *subcutaneous* or areolar variety, the above results are less common, and unless the skin be involved, I have never seen them spontaneously disappear. They usually remain as soft spongy masses for some years, and may perhaps degenerate and be absorbed during youth. Of this, I am only able to speak with probability, as I have not yet had actual proof; but judging from their rarity in mid-life, I am led to this conclusion; for surely all are not operated on. The spontaneous cure, then, is not attended by any danger, nor by much inconvenience. Some irritation accompanies the eczema or ulceration, and occasionally a little blood is lost. From the above-stated considerations, I conclude that it is not necessary to interfere with the common kinds of nævus, unless they are so placed as to produce great deformity, or they are likely to involve important parts, such, for instance, as the eyelids. When they commence deeply, there appears no limit to their growth. They then become one of the most formidable affairs with which the surgeon has to deal. I have lately seen one in the orbit, which has been treated by Dr. Mott, of New York; in this case, the carotid artery has been ligatured, without producing a cure. He is now under the care of my colleague, Mr. Poland, in the Ophthalmic Hospital. One occurred in the practice of my colleague, Mr. Adams, at the London Hospital, some time ago, in which the whole lower limb was implicated. Mr. Critchett, some years ago, tied the carotid artery for one in the orbit, at the London Hospital. The disease was checked for a time, but returned.

I remember instances in which fatal results have followed operations on small superficial nævi in children, when in all probability the diseases would have disappeared had they been entrusted to nature's remedy. But when successfully treated by ligature or other means, much agony is necessarily inflicted in the process, and I have known in my own practice many a little creature reduced from a state of ruddy health to one of great danger, through the operation of the ligature. For these reasons, I never operate on them till I have had some opportunity of observing their progress. Since I came to the decision that the operation is seldom required, I have had very few occasions to depart from the practice, though I have frequently six or eight cases under observation at one time.

So much have I found the friends of children actuated by a desire to submit them to operation, that the principal difficulty I have had to contend with, has been their reluctance to give a fair trial to the course which the tumours naturally take.

I have lately had under observation a case of cutaneous nævus of the scalp, as large as a crown piece, and situate on the occiput. The subject being a baby of a few months. In this instance, a few small vessels were noticed soon after the child's birth, apparently involving the thickness of the scalp. After a few weeks it commenced to spread circularly, and in six months had acquired its greatest extent. It then became affected by an eruption of eczematous character, and small points of ulceration from time to time crept along its surface, producing some irritation, and disturbing the child's rest at night. A lotion of the dilute solution of diacetate of lead reduced the irritation, and under its influence the vessels gradually disappeared, the surface completely healed, and there is not a vestige of it apparent at this time. A lock of dark, rather coarse and curly hair now marks the seat of the growth, the child being eighteen months old.

Several months ago I was requested by my friend Dr. Hess to see a nævus on the body of one of his children. It had acquired the usual size, and was of the subcutaneous variety. After many months he tells me it has not increased, but remains a soft spongy mass, having apparently little disposition to change. No treatment has been adopted.

A case has been recently under my care at the London Hospital. It was a subcutaneous nævus on the forehead of a child, of about the size of a half-crown, and rising considerably from the surface, produced an amount of deformity which called for some interference. I therefore passed two ligatures subcutaneously through and around the tumour, encircling it in two halves. In a few days both ligatures came away, and the tumour gradually shrank, leaving no deformity.

Another case has occurred amongst my out-patients at the Royal London Ophthalmic Hospital, which, from its situation and important relations, required the interference of art.

It occupied the upper eyelid of a child, implicating the entire breadth of the lid, and consequently producing an amount of deformity which was dangerous to the eye. Chloroform was administered to the child, and the lid was punctured in many places by a hot needle, so as to set up considerable inflammation and exudation. The nævus was completely destroyed, leaving scarcely a vestige of its peculiar structure, and at the same time restoring the motions of the lid to their normal condition.

The above examples (from a considerable number of which I have notes) are sufficient to illustrate my view that a very large proportion of nævi are unnecessarily submitted to operation, when placed on parts of the body where their presence is neither prejudicial to function nor productive of serious deformity.—*British Med. Journal, Dec.* 25, 1858, *p.* 1063.

86.—METALLIC LIGATURES AROUND ARTERIES AND FOR WOUNDS.

By Professor Simpson, Edinburgh.

(Being an Abstract of a Paper read before the Medico-Chirurgical Society, Edinburgh.)

In pursuance of the observations made last year, Dr. Simpson had had a series of experiments tried on the effects of metallic ligatures around arteries. Dr. J. Murray has kindly and most ably made most of these experiments. He showed one of them, viz., the carotids of a cat, recently killed. Both of the carotids had been tied and obliterated, seven months ago, with palladium wire. There was so little swelling, or change, or effusion, around the sites of these ligatures, that it was difficult at first to trace their presence. If, Dr. S. argued, these ligatures had been organic, or made of silk or hemp, and not metallic, the amount of irritation produced by them would, long ere the seven months had elapsed, have set up eliminative and suppurative inflammation.

Professor Simpson showed the carotid of a horse, obliterated by the use of iron needles or pins instead of ligatures. He observed that, in obstetric surgery, the problem of healing wounds under the greatest disadvantages, by the employment of metallic sutures, had now been perfectly solved; as in the treatment of vesico-vaginal fistulæ, which were thus successfully closed at the present day, and that in despite of one side of the wound being in contact with urine and the other with leucorrheal or hemorrhagic discharges. What prevented the same problem being solved in wounds in general surgery, as, for example, in amputation wounds? Two causes, he thought, impeded the hopes of union by the first intention in such wounds. The spasmodic action of the incised muscles kept the sides or flaps of the stump, in some instances, after they were brought in apposition, in such frequent motion, as to make the surfaces placed in apposition move more or less over each other, and thus by unrest prevent their adhesive union. But the second cause of their non-union was far more important and detrimental in its agency. This second cause was the presence of the ligatures tied around the exposed arteries. These ligatures, as dead foreign organic bodies lying between the lips of the wound, prevented these lips adhering at the sites of the ligatures. But the ligatures were more hurtful still in a different way. Each ligature tied around an artery produces at the site of the ligature three processes, viz., ulceration, suppuration, and gangrene. For it necessarily cut through the remaining coat or coats of the arterial tube, at its ligatured part, by the process of ulceration; that process necessarily involved some amount of suppuration, and a small mortified segment of the vessel came away in the loop of the ligature when it is separated. Sometimes, also, the extremity of the vessel beyond the seat of the ligature became also gangrenous, and died. Now, supposing in an amputation that five arteries have been tied (more are frequently ligatured), then there will be, for many days subsequently, five different points in the interior of a stump, at each of which the processes of ulceration, suppuration, and gangrene are going on. Hence arises the slight chance of such wounds healing by the first intention or primary union. Prof. Simpson suggested that long metallic needles of passive iron should be passed through the stump from one cutaneous surface to another. Such needles would not impede union, as proved in the operation of harelip, but they would keep the cut surfaces in full apposition. If passed one on each side, or even near a bleeding point, they would so compress the bleeding artery as to shut up its tube. When necessary, they could be crossed in the figure 8 around a bleeding orifice. They could be pulled out after a few days, leaving no foreign body in the wound, though, being metallic, they would not irritate by their presence. The principle can be applied to compress vessels in aneurism, &c.—*Edinburgh Medical Journal, Dec.* 1858, *p.* 547.

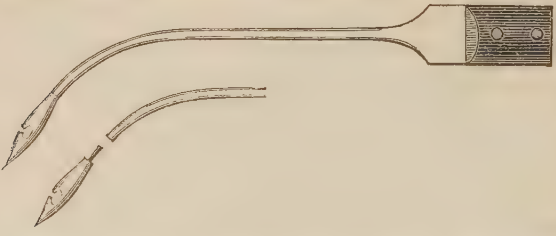
ALIMENTARY CANAL.

87.—ON THE OPERATION FOR CLEFT PALATE; WITH A NEW FORM OF NEEDLE.

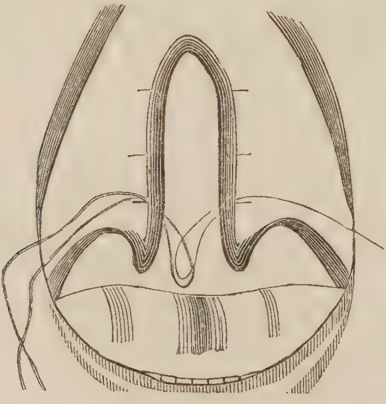
By Christopher Heath, Esq., Demonstrator of Anatomy at the Westminster Hospital, and Surgeon to the St. George's and St. James's Dispensary.

The operation of staphyloraphy seemed to have attained its perfection in the hands of Mr. Fergusson, who, after the division of the levatores palati, has been enabled to bring the sides of the cleft palate into apposition by means of silk threads, with unvarying success. The introduction of metallic sutures, however, into the practice of surgery, rendered some modification in the operation necessary, and accordingly, in the last four cases operated upon at King's College Hospital, Mr. Fergusson has knotted a silver wire to the thread previously passed across the gap, and has thus replaced the silken by a wire suture. The objection to this method of proceeding lies, first, in the extra complication, and next in the obstacle which the knot affords to the ready passage of the wire through the palate.

In the following modification of Mr. Fergusson's method I have endeavoured to avoid these disadvantages, and also the difficulty which is always experienced in seizing the minute thread at the bottom of the mouth, and drawing it out of the eye of the needle. The needle (Fig. 1) which I employed (made by Matthews, of Portugal street,)



differs from the ordinary curved needles in being flattened in the opposite direction—i.e., parallel to the plane of the curve, instead of at right angles to it. The head of the needle is also movable. The effect of this arrangement is, that the incision made by the needle is at right angles to the edge of the palate (Fig. 2), instead of being parallel to it, and thus, I conceive, there is less danger of the portion on which the thread rests sloughing away from want of nourishment. Besides, the head of the needle can much more readily be taken hold of by the forceps in this position and drawn out of the mouth, bringing the wire or thread with it, and thus avoiding the difficulty of catching the thread. The following are the notes of the case:—



Sophia S., aged thirteen, was born with a single hare lip, and a cleft in the hard and soft palate continuous with it. The lip was operated upon successfully when she was an infant, but there being a very unsightly notch still present, I cut out the old cicatrix, and having pared the lip, brought the edges together, with great improvement in her appearance. The lip being perfectly healed, I proceeded to operate on the soft palate on the 15th of October, 1858. Having divided the levatores palati, and pared the edges of the fissure, I proceeded to pass a single *freshly-annealed* silver wire with the needle I have described; this was easily drawn out of the mouth with the head, and detached through the slit in the eye, and I then passed a double loop of silk in the same manner on the opposite side. The end of the wire was now closely bent into the loop of the silk, and was thus readily drawn through the opposite side of the cleft (Fig. 2.) Two other sutures being introduced in the same way, the ends of each of the wires were simply twisted together, and held the edges of the palate in admirable apposition.

It may be thought there would be a danger of the head of the needle becoming detached, and so dropping into the patient's fauces; but it is effectually retained by the thread or wire being held tightly by the operator's fingers, and as the slit in the eye is on the convexity of the needle, there is no danger of the thread escaping through it prematurely. The use of the *freshly-annealed* wire was suggested to me at the time of the operation by my friend Mr. Barclay, and it is certainly preferable, from its greater pliability, to the hardened wire in common use. I need hardly say that it is prepared by heating the ordinary wire to redness and allowing it to cool slowly.

The after-progress of the case was most satisfactory. The sutures were removed on the fourth and fifth days, when union was quite perfect. A little unhealthy action came on about the anterior part of the wound a day or two after, but this was readily checked by a dilute hydrochloric acid lotion.

A fortnight after the operation, the parts were perfectly sound and painless, and the articulation was already very considerably improved by the operation.—*Lancet, Dec.* 18, 1858, *p.* 627.

88.—ON A METHOD OF RESTORING THE LOWER LIP, AFTER COMPLETE OR PARTIAL RECISION IN CASES OF CANCEROUS DISEASE.

By Dr. ANDREW BUCHANAN, Surgeon to the Glasgow Infirmary, &c.

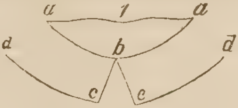
[There is not any part of the body so subject to tumours and ulcerative affections requiring operative interference as the lips, and at the same time in which the deformity becomes so conspicuous. There is an obvious limit to the ordinary V shaped incision for the removal of tumours; if of large size too much traction is required to bring the edges in apposition. Dr. Buchanan says:]

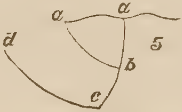
A mode of operating which was employed by Dupuytren, consists in simply removing the diseased parts by a semi-elliptical incision. The deformity produced in this way is much less than might be anticipated, as the action of the muscles in the substance of the lip, and the contraction of the wound, tend gradually to bring the cut surface to the level of the adjacent parts. In all mere affections of the prolabium, and generally, in all cases in which the lateral extent of the diseased parts is much more considerable than their depth, this operation appears to me entitled to preference. When, on the other hand, the disease, whatever be its lateral extent, stretches deeply towards the root of the lip, Dupuytren's operation will be found to produce a deformity which is not obviated by any subsequent elevation of the cut surface ; and, if it be the lower lip which has been operated upon, a constant discharge of saliva will ensue.

There are, then, certain cases of disease of the lip to which neither of the preceding methods of operating are applicable. These are, in the first place, cases in which it is necessary to cut away the whole lip ; and, secondly, cases in which the disease, though more partial, extends so deeply towards the root of the lip as to preclude the employment of Dupuytren's operation, and to such an extent laterally as to render impracticable the attempt to procure adhesion after the common angular section. In such cases it appears to me to be the best practice to form a lip by substitution from the skin of the neighbouring parts. I propose here to describe an operation by which the substitution may be effected very completely, and without giving much pain, in cases of complete or partial removal of the lower lip ; but the principle of the operation may be applied in cases of affection of the upper lip, or of other superficial parts.

The first time I performed this operation was in the year 1835, on a man named Adam M'Gilvray, from Tolcross. He was fifty-six years of age ; he had been affected with cancer of the lip for four years previously. Six months after the commencement of the disease, the scirrhous tumour of which it then consisted was removed by the knife. The disease did not recur till about two years and a half after the operation, or twelve months previous to his admission into the hospital, on the 15th of May, 1835. It then consisted of a ragged irregular ulcer, with hard tumefied margin, and involved the whole of the left half of the lip, and a considerable portion of the right. On the 20th of May I removed the whole of the lower lip by a semi-elliptical incision ; and then proceeded to form a new lip in the following way, which I must explain by reference to the annexed diagram (fig. 1), as it could not otherwise be readily understood.

Let the line A A represent the commissure of the mouth, and the semi-elliptical line A B A the incision by which the carcinomatous mass was removed. The new lip was formed by means of two flaps taken from the sides of the chin, each bounded by a curvilinear incision, B C, and a straight, or nearly straight one, D C. The former incisions commenced exactly in the middle of the operation wound in the mesial line of the face. The straight incisions again commenced at a point from half an inch to an inch distant from the angle of the mouth, in a line supposed to be drawn from that angle to the middle of the lower jaw on the same side. They extended, each in a direction parallel to that of the corresponding half of the operation wound, and were continued till each joined the curvilinear incision of the same side at its lower end. The curvilinear incisions were perfect arcs of a circle described with the straight incision D C, as radius. Every point, therefore, of the curvilinear incision B C, was equidistant from the point D, at which the straight incision commenced. In consequence of this arrangement, after the flaps were dissected from the chin and raised upward, so that the upper portions of them occupied the site of the lower lip, the lower portions fitted exactly to the spaces which had been previously occupied by the upper portions.

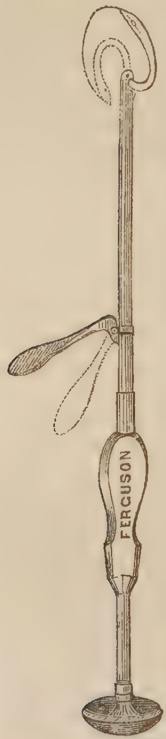




In this situation they were secured by the twisted suture, adhesive plaster, and a bandage ; the upper parts of each flap being united together, while the lower parts were united on each side to the summit of the triangular peak, C B C, situated in the middle line of the face between the curvilinear incisions. By the elevation of the flaps a vacant space was left under each ; the deficiency in the region of the lip being, in fact, transferred to the two sides of the chin. In the artificial lip thus formed, there is, as in the natural lip, a protuberance in the middle of the upper margin, as must be obvious from considering that the line A B is manifestly greater than the half of A A, to the level of which A B is raised.

The cure, in this case, was very much retarded ; first, by a severe attack of erysipelas, which, fortunately, however, did not occur till the adhesions were nearly completed ; and next, by the formation, on the upper edge of the left flap, of a small indurated swelling, which required excision. Nevertheless, the man was dismissed, cured, on the 23rd of June. I saw him two months thereafter, when his lip looked very well. The parts were quite healthy, and a perfect mucous membrane lined the upper margin and inner surface of the flaps forming the lip. Had the man been careful to keep the skin closely shaven, no one could have discovered, unless by near inspection, that there was anything peculiar about the lip ; but as, like many persons in his rank of life, he seemed to shave only once a week, the long hairs running, like the whiskers of a beast of prey, parallel to the mouth, and in opposite directions on the two sides of the lip, gave to him an aspect not the most prepossessing.—*Glasgow Med. Journal*, *Jan.* 1859, *p.* 420.

89.—FERGUSON'S FISSURE NEEDLE.



The annexed woodcut will explain better than any verbal description how Mr. Ferguson has endeavoured to supply the want long felt by operating surgeons of a convenient needle for passing a ligature easily and rapidly through the opposed surfaces of a fissure, more particularly in the operations for the cure of cleft palate and vaginal fistulæ.

The instrument consists of a handle and staff, both in the same straight line, a needle, curved ellipsoidally being fixed by an hinge-joint at the extremity of the staff. This needle is forced to move in the radius represented in our engraving by a dotted line, when pressure is made upon the projecting handle of a compound lever, which is attached at its furthest extremity to the needle aforesaid. When the edges of the fissure have been brought together in the usual manner, the surgeon is able to pass his silk or wire ligature through both sides of the opposed edges by a single movement; *i. e.*, he thrusts the needle (carrying the silk) upwards, so as to perforate one of the edges of the wound, and then carries it through the other side by simply pressing on the handle of the lever. Having seized the silk or wire with forceps, a removal of the pressure exerted by the thumb on the lever allows the needle to resume its former position, leaving the silk in the desired situation, and the instrument may then be withdrawn, re-threaded, and the same routine observed till the requisite number of stitches have been passed. At the suggestion of Mr. Spencer Wells, who used this needle in a case of vesico-vaginal fistula, Mr. Ferguson now makes the needle with an opening eye, so that the silk or wire may be freed as soon as passed, and the needle more easily withdrawn.—*Med. Times and Gazette, Nov.* 20, 1858, *p.* 537.

90.—CASES CONNECTED WITH THE TEETH.

By Henry Hancock, Esq., Surgeon to the Charing Cross Hospital.

[The following paper does not profess to contain an epitome of the diseases connected with the teeth, but merely to relate a few instances in which the cause of mischief would seem to have been overlooked.]

Case 1. A gentleman, aged thirty, was sent to me from the country for lock-jaw and pain under the right ear. He could only separate his jaws for about half an inch in front, and had been in that state for nearly twelve months. He attributed the mischief to cold, and had been subjected to various kinds of treatment, including leeching, blistering, &c., without benefit. Upon careful examination, I observed that his teeth were much crowded and wedged closely together, particularly in the upper jaw, and concluded that to be the cause of suffering. I accordingly requested Mr. Alfred Canton to see him with me. He extracted one of the anterior molar teeth from the upper jaw. The tooth was very large, but perfectly sound, and the patient returned home in the course of a week—cured.

Case 2. A young woman was brought to meet me at Charing-cross Hospital with wry neck, the head being drawn down nearly to the left shoulder, accompanied with considerable pain. She had suffered in this way for above six months, and had been treated by blisters to the spine, leeches, various liniments, and internally, with quinine, calomel, various preparations of iron, valerian, &c., but without benefit. I was informed that, with this exception, she was in good health, and I therefore concluded the mischief depended upon some local cause. An examination of the spine in the cervical region showed that there was no disease in that situation; but, upon looking into her mouth, a stump and a partially decayed tooth were seen in the lower jaw, on the left side. When I decided to have these extracted, she assured me they caused her no inconvenience. Nevertheless, she was induced to have the operation performed, and she got well in a few days.

Case 3. Mrs. D. consulted me for a tumour in the right cheek, of six months' duration. She was a fashionable ladies' nurse, and had been seen by various of the leading physician-accoucheurs, who had physicked her, ordered poultices and iodine to be applied, and finally advised incisions into the part. Fearing that this might mark her face and prove prejudicial to her business, before having it done she applied to my friend, Mr. Whitmore, who sent her to me. I discovered that a molar tooth in the right side of the upper jaw was partially decayed, and had been stopped; I therefore advised her, before submitting to any operation on the tumour, to have the tooth removed. She took my advice, and came to show herself to me three weeks after. The tumour had then entirely disappeared. Beyond extracting the tooth, nothing had been done either locally or generally.

Case 4. *Amaurosis depending upon dental irritation.*—J. K., aged eleven, admitted under my care into Charing-cross Hospital, November 11th, 1854. About a month previously, upon waking one morning, he found he was entirely blind. Previously he had nothing the matter with his eyes, and when he went to bed on the preceding night could see distinctly. He consulted a surgeon in the country, who prescribed medicines, blisters, and subsequently cupping; but as he did not derive benefit therefrom, he was, at the expiration of a month, sent up to me at the hospital. His pupils were dilated, fixed, and uninfluenced by light, which he could not distinguish from darkness. The suddenness of the attack, and the absence of the usual premonitory symptoms led me to conclude that the mischief was functional rather than structural, and I consequently examined his teeth. I found these much crowded and wedged together, the jaws, in fact, not being sufficiently large for them; and I therefore suspected that the amaurosis depended upon this cause. I accordingly ordered him to be shown to Mr. Roberts, the dentist to the hospital, who, on the 17th November, extracted two permanent and four milk molar teeth. On the same evening, the boy could distinguish light from darkness; and on the following morning, could make out objects. From this time his sight rapidly improved, and he was dismissed cured on the 28th, the only treatment beyond the removal of the teeth being two doses of aperient medicine.

I have met with other cases in which amaurosis had existed for a longer period than in that just related, the patients having been blind for six or eight months, and subjected to the usual treatment for amaurosis—*e. g.*, salivation, cupping, leeches, blistering, tonics, &c.—unsuccessfully; but who have been cured by the abstraction of a decayed tooth, as in the following instance.

Case 5. A man from the country applied to me at the Royal Westminster Ophthalmic Hospital for total blindness of the right eye of eight months' duration. The attack came on quite suddenly, not having been preceded by pain, muscæ, flashes of fire, or any of the usual precursors of amaurosis. He could not distinguish light from darkness; the pupil was dilated and fixed. The various remedies for amaurosis had already been employed in the country without success. I directed my attention to his mouth, and found the second molar tooth in his right upper jaw much decayed. This was extracted, and the patient desired to attend again at the hospital in two days. At his next visit he could see, and was able to distinguish objects, though not very clearly. In the course of a few days he returned to the country quite well. He had no other treatment beyond the extraction of his tooth.

It is of importance to diagnose correctly between this and structural amaurosis; for though purely of a functional character in the first instance and capable of being cured, as we have seen, by very simple means, still, if mistaken for any length of time, and treated for the structural form of the disease, the sensibility of the nerve may become permanently impaired by the long-continued irritation, with consequent injury to sight.

These cases may usually be distinguished from those depending upon actual disease by the suddenness of the attack; they are rarely preceded either by dimness, pain in the head, muscæ volitantes, flashes of fire, or any other symptoms indicating congestion or inflammation of the eye, optic nerve or brain; and in many instances they are unaccompanied by pain in the tooth or teeth, so that it is often very difficult to convince patients that parts causing them no pain, and to them apparently so unconnected with the eye, can possibly be the cause of such serious effects upon that organ.

I am indebted for the notes of the following case of ptosis and diverging strabismus to Mr. Mayou, house-surgeon of the Royal Westminster Ophthalmic Haspital :—

Case 6. H. R., aged twenty-nine a native of Hereford, was admitted under Mr. Hancock's care, into the Royal Westminster Ophthalmic Hospital on July 3rd, 1858. The strabismus had existed for three years. The ptosis is of quite recent date, about a fortnight's duration. The eye (the left) is quite closed. The mischief came on suddenly, without pain either in the head or eye. Ordered compound iron mixture, one ounce, thrice daily, with an aperient occasionally at bedtime.

July 12th. Is no better. Mr. Hancock examined her mouth, and found two molar teeth on the left side of the upper jaw decayed. She assured him that they caused her no pain ; but he ordered them to be extracted, which was done.

14th. The ptosis is much better.

16th. The ptosis has now assumed an intermittent character. The eye is quite open in the morning, but towards noon the lid droops, and does not resume its proper position until the evening. To take disulphate of quinine, five grains, twice a day.

20th. Ptosis is now cured, and the strabismus better, so slight as not to require operation.

The patient remained in the house three or four weeks longer, when she was discharged cured.—*Lancet, Jan.* 22, 1859, *p.* 80.

91.—ON THE RADICAL CURE OF REDUCIBLE INGUINAL HERNIA.

By Richard Jones, Esq., (late of Guy's) Resident Surgeon in the Workhouse Hospital, Liverpool.

[After relating the details of nine successful cases, the author proceeds to review the principal reasons which have been alleged against the radical cure of scrotal hernia.]

Among the chief arguments brought forward against the operation is the *probability* of peritoneal inflammation supervening. Without absolutely denying the *possibility* of this taking place, I will unhesitatingly assert, after a careful investigation into the clinical history of sixteen cases, that it is exceedingly improbable. I have not seen the slightest indication of peritoneal inflammation in a single case. The little external redness and tenderness is merely an extension of the pain caused by the pressure exerted upon the duplicature of the integuments by the instruments, and this has been regarded with unnecessary apprehension in some cases, for I have myself seen a case in which it was proposed to prescribe active measures when all positive signs of peritoneal inflammation were absent. I think that there is not one well-authenticated case of peritonitis on record out of sixty-four cases that have been reported. I believe, certainly there were some doubts on one, or even two instances; but even granting that these were genuine cases of peritonitis, I think we are justified in referring such a small proportion to mere chance or coincidence; consequently, if we appeal to statistics, it will furnish a most convincing testimony in contradiction to the apocryphal supposition, that peritonitis might follow.

And out of sixty-nine cases, neither death nor any dangerous symptom followed in a single instance; and upon careful reflection of the *modus operandi* of the radical cure, we should not be prepared to anticipate the extension of the peritoneal inflammation, because the exciting cause is limited to that spot when the serous membrane is kept in mutual contact by the instrument; consequently the immediate results of inflammatory exudation is the fibrillation of lymph, which will unite the opposing serous surfaces, and tend to prevent the diffusion of the inflammation. In conclusion, I will state that it is exceedingly problematical, whether a single case of peritonitis has hitherto happened, depending solely upon the operation; the one or two cases that have been mentioned as claiming some pretensions to depend upon the operation are enveloped in great obscurity, and we are not justified in regarding even these two cases as traumatic peritonitis, because two of the patients were in a debilitated and unhealthy condition at the time, and this circumstance is a strong presumptive evidence negatory to the supposition that the operation was the sole cause of the peritonitis; it might possibly assist and accelerate other predisposing causes.

The next cardinal point which must be taken into consideration is the probability of relapse. This has been urged with great stress as a serious adversity to the future generalisation of the operation. I think this objection has been greatly magnified, as will be found by referring to statistical reports. And most probably in some of those unsuccessful cases recorded the fault rested with the operator and not with the operation, for it requires a little tact and experience to perform this operation successfully. In one case of relapse that happened in this hospital fault was traced to the manner the instrument was introduced, which had slipped above the margin of the ring. I am disposed to think that some other cases of relapse depend upon similar causes. or the relapse might be occasioned by over officiousness on the part of the surgeon in disturbing the instrument too often. consequently breaking the adhesions as soon as they are organised. It was proposed once to remove the instrument on the fourth day and cover with ointment; this is a very pernicious practice, and will very likely defeat the operation by rupturing the adhesions, which are at this period very weak. Nor is it productive of any benefit to remove the instrument as soon as the serous discharge issues from the interior of the plug, for in nearly all cases the serous effusion will happen before the fifth day, as the cases are exceedingly rare in which the instrument may be withdrawn at this early period with impunity. Nor should I feel disposed to risk this in any case whatever. Under certain conditions, vesication is excited in the interior of the plug by the third or fourth day. The duration of time that will intervene before serous effusion happens will be proportionate to the delicacy of the patient's skin, and this will range from three to seven days, and should in no way serve as an index for the time the instrument should be allowed undisturbed. Taking all these incidental causes of relapse into consideration we are forced to admit that the number which exclusively depends upon other irremediable causes are very few indeed, nor have I myself seen a single case which could not be traced to some accidental cause, which might be averted by foresight and care. I am disposed to believe that the majority of cases which have not succeeded can be referred either to misapplication of the instrument or removing it before the adhesion was sufficiently strong. Consequently, if we were able to subtract these from the total number of failures, the remainder would be proportionately a very small fraction; perhaps not one in fifty. This point, which has been so earnestly expatiated upon as an insuperable objection, will be satisfactorily answered by referring to statistics, which show that the unsuccessful cases, including those which depend upon accidental causes, are only three in sixteen, "and these cases were purely due to remediable causes." It was mentioned during the discussion on this subject at the Liverpool Medical Society that it is rather premature to pronounce the cases successful three or four months after the operation, and that a relapse might occur after we have lost sight of the patient. In the first place, this argument is a mere hypothesis, destitute of any evidence, and comes in direct collision with facts already registered; for I do not know of a single case of relapse after the expiration of the third month, for the probability of relapse will be in an inverse ratio to the time that intervenes after the removal of the instrument; after three or four months the plug becomes so organised and identified with the adjacent tissue that a relapse is almost impossible at this advanced period.

The two chief objections have been fairly dispensed with, and in both instances statistical reports will serve as the best *onus probandi.* Also it behoves us, in an operation not demanded by urgent and pressing danger, to consider the amount of suffering the operation causes to the patient; this is of such a trivial consequence in the radical cure that it is hardly worthy of consideration—there is scarcely an operation in surgery accompanied with less suffering and danger. The radical cure has been regarded as officious surgery by some who have not taken the trouble to test its merits; they argue that it is not intended to answer any other purpose than a mere substitute for a truss, or a surgical experiment to gratify curiosity; this is both *suppressio veri* and *suggestio falsi*, for it is intended to avert peril that may happen at any moment, also release the patient of pain and annoyance that will always be an important hindrance to his aptitude for physical exertion and social enjoyment; and the result of an extensive experience will serve as a proof that the operation is not a surgical experiment that might or might not answer the intended purpose; and it is no presumption to assert, that if the operation is skilfully performed under favourable conditions, and the case properly watched, that the issue will to a moral certainty be successful. It will seem surprising that an operation possessing so many superior advantages has not become more general in its application. I have even heard this and other similar remarks mentioned as reflecting suspicion upon the claims of the radical cure. I cannot help regarding such a subtle objection as an ungenerous wish of opposition, for it seems almost incredible that any one can conscientiously indulge in such an extreme scepticism, and no one would condescend to answer such scrupulous and sophistical course of reasoning if applied to other surgical operations legitimately acknowledged by the profession, nor would it create doubt or uncertainty respecting their advantages, or impute a slur upon reputation founded upon the intrinsic merits of the operation.

Mr. Higginson proposed a simplification of the instrument at the Liverpool Medical Society, which I think would be a great improvement. The central piece of the "Rothmond" instrument is composed of solid metal, which increases the weight considerably, and this causes unnecessary pain and inconvenience to the patient. This was the case with a patient at the West Derby Hospital, upon whom Mr. Edward Lister had performed the operation a few days previously. He was constantly complaining of a dragging pain caused by the instrument; also it pressed upon the testicle, which was drawn high up. Besides this, there is another evil consequent upon using a heavy instrument, that it increases the tendency in the plug to descend in the canal, consequently incur more weight upon the needle. Wützer's instrument is decidedly superior in this respect, for the cylinder is a simple piece of round wood, with a hole in the interior for the needle. The only imperfection in this instrument is the impossibility of modifying its size according to the size of the canal and rings. Mr. Higginson's suggestion to have the middle piece composed of wood, would remedy the inconvenience caused by the greater weight.

The size of the needle with "Rothmond's" instrument is about an inch too short; for in the case already mentioned at the West Derby Hospital, the needles were too short to penetrate through the integument except with a good deal of pressure; and we were obliged to get new needles made an inch and a half longer. I have seen the same thing in other cases in this hospital, which caused a good deal of annoyance. And even if the needle has fairly penetrated the integuments. if the piece which is through is very short, it will in all probability slip from the opening in the upper plate when the parts begin to swell a little; and this will necessitate the re-adaptation of the instrument.

I think the adoption of these suggestions in the construction of the instrument will materially facilitate the operation.—*Med. Times and Gazette, Nov.* 27, 1858, *p.* 547.

92.—*On the Radical Cure of Hernia.* By Edward Lister, Esq., Surgeon to the West Derby Hospital.—[After the relation of two cases of operation for the radical cure of hernia by Wützer's method, Mr. Lister makes the following remarks:]

There are several points in the performance of this simple operation which require great consideration.

1. The needles in present use appear to be much too short, and are apt to slip, as occurred in the case of Welsh. They should be at least six inches long.

2. The bowels should be strictly attended to, and kept regularly and freely open, so as to do away with all physical force.

3. The instrument should not be withdrawn at an earlier period than eight days, and not later than fourteen days; and the time should be proportionate to the age and condition of the patient, and other incidental circumstances; the older the patient the longer should be the time of instrumental treatment.

4. The greatest care should be observed in getting the instrument within the external abdominal ring before transfixing the needle; and when it is properly adapted, it will require some pressure to prevent it slipping above the tendon of the external oblique.

5. To get the intestines completely out of the way of the needle.

6. To keep the patient in the recumbent position, so as to allow of the least possible motion.

7. If no discharge of epithelium, fat, or serum appears from the invaginated scrotum within five to seven days, it will be necessary to introduce some preparation of cantharides, as the emp. or acet. lyttæ.

I may here mention that I think the instrument might be made of much lighter material than in present use—as light wood (the plug being made of different sizes), malacca, or bamboo cane: or metallic cylinders, with a central tube for the needle.—*Med. Times and Gaz., Jan.* 8, 1859, *p.* 32.

93.—FEMORAL AND VENTRAL HERNIA RADICALLY CURED.

By Redfern Davies, Esq., Surgeon to the Birmingham Workhouse Infirmary.

[Mr. Davies believes the following cases to be the first attempts which have been made in this country to radically cure femoral hernia; and and also direct or ventral hernia. The operation was followed in all cases by absolute cure, and unattended with unpleasant, much less, dangerous symptoms.]

Thomas M., aged twenty, had been the subject of a femoral hernia, the result of a strain, for two years; it protruded constantly; in size about that of a pigeon's egg, and on account of its painfulness prevented him working. Accordingly, the patient on his back and the buttocks well raised, the hernia was returned, the little finger carried well through the crural canal and femoral ring, the artery being plainly felt beating on the outside. A well-curved canula needle was carried on the finger, and its point made to press against the abdominal parietes; the needle was then thrust through them, and a silver wire being passed into the eye it was drawn through. A small piece of vulcanised india-rubber, about the size of a split pea, attached to the crural end, and fastened by means of a split shot; the other extremity was then passed through another piece of rubber about the size of a florin, the two extremities drawn tightly together and fastened by a split shot. A portion of integument was thus drawn into the canal.

The wire was loosened on the seventh day, and finally removed on the ninth. There was a copious discharge of a very thick yellowish green pus, in the track of the wire, and around, considerable thickening from effusion into the tissues.

That portion of the wire which was inside the body, i.e., between the points of exit and entrance, was quite bright; water-dressing and compress applied.

Upon examination, a few days ago, by some of my professional friends, he was found radically cured.

The next case was that of a woman, which is so similar, that I, therefore, do not detail it.

The third case: Amelia M., aged fifty, has been ruptured for three years. The hernia was about as large as an orange, and the femoral ring would admit a man's thumb. For two days she went on very well, and had her bowels opened well once. On the third day she complained of pain in the abdomen, chiefly at the epigastrium; firm pressure around the seat of operation was not felt. In the evening there was a tympanitic condition of the abdomen on percussion; she said she should be better if her bowels were opened, and accordingly she had a dose of castor-oil and tr. of assafœtida. In the morning, bowels not opened; tympany increased; pulse weak; tongue dry; skin dry; and she vomits everything. No pain around the seat of operation, and no inflammation can be seen there. She was ordered ice, brandy, and injections of castor-oil, turpentine, and tr. assafœt.; also croton oil by the mouth; a long tube was passed per rectum, but only a little flatus escaped. In the evening, bowels not opened; injections coming away unaltered; stercoraceous vomiting, and much troubled with wind on the stomach. In short, on the fifth day she died.

[At the post-mortem examination the intestines were found to be injected, but otherwise healthy in appearance. The junction of the ilium and cæcum was found bound down by old adhesions, which, being separated, an abundant escape of pus took place.]

Just at the ilio-cæcal valve was an ulcer of about the size of a shilling, its edges raised, indurated and ragged, the surface depressed, and presenting a perforation of about the size of a split pea. The surface of this ulcer looked to the fascia beneath, and, by adhesions before spoken of, was attached to it, preventing the escape of fæces into the peritoneum.

[The conclusion come to was, that the cause of death was the perforating ulcer of colon, and that the hernia was as far as it went, in all respects as well as it could have been wished.]

Case 4. Alice L., aged fifty, has been ruptured on both sides for nearly twenty years. The femoral rings are very large, admitting about two fingers. The ruptures extend to the middle third of the thigh, in size about that of a man's head. They are easily returned, but no instrument or apparatus will retain them, consequently, she can only lie and sit, locomotion being very painful.

Upon this case I applied my modification of Wützer's instrument, using a plug of three inches in circumference, big enough to fill the ring well—length of wooden plug invaginated $2\frac{1}{2}$ inches, distance of exit of needle from edge of *doigt de gant* $3\frac{1}{4}$ inches. The surface of the wooden plug was painted over by a very elegant preparation of cantharidine held in a solution of collodion; one grain of the former to one ounce of the latter, and devised on purpose for these operations by the assistant medical officer, Mr. John Tuck, and which I now always use. The instrument was applied for nine days, and on its removal the usual treatment of spica bandage and compress was applied.

The case has been submitted to the examination of very many of my professional friends, and it is found to be most radically cured. I intend operating on the other side shortly.

These complete the list of femoral hernia.

James P., aged twenty-six, has been the subject of a ventral hernia for four years; the result of a strain. In size it is about that of a pigeon's egg.

The plan here adopted was by wires, and executed in the following way:—

The hernia having been returned, the curved trochar containing the needle before alluded to was carried by the finger well through the ring, and its extremity made to press against the abdominal wall. The needle thrust through them, and, having been threaded by a silver wire, withdrawn. The same manœuvre on the opposite side of the ring (or in more places according to circumstances.) To the lower ends of the wires were attached small pieces of india-rubber and secured by split shots, and to the upper similar but larger pieces. They were then drawn tightly together and clamped by split shots A portion of integument was thus tucked into the ring.

At the end of eight days the wires were removed. A copious and thick purulent discharge issuing in their track, and considerable thickening of the surrounding tissues. The portions of the wire contained in the body were quite bright.

In about one week he was allowed to get up, and a light truss applied, the hernia being cured; impulse on coughing the same on both sides of abdomen, and no evidence to the finger of the former aperture.

W. P., aged fifty-five, the subject of ventral hernia. The chief point of remark in this case is that he was operated upon twenty years ago for a strangulated scrotal hernia, and which would seem to be radically cured by a portion of omentum blocking up the external ring.

Since this operation he has been the subject of a ventral hernia which was operated upon by similar means to the latter case and with a similar result.

Conclusions.—The chief and great points of interest in these cases are—

a. The practical assurance of the curability of femoral hernia, not only of a small size, but also of the largest possible dimensions.

b. That it is an operation unattended with danger.

c. And though the peritoneum be wounded (even in three places) its perforation is innocuous.

d. The radical cure is effected by an incorporation of the invaginated plug with the borders and surfaces of the crural canal.—*Med. Times and Gazette, Feb.* 12, 1859, *p.* 159.

94.—*The Radical Cure of Reducible Inguinal Hernia.*—We are glad, indeed, to state that the operation for the radical cure of reducible inguinal hernia is now becoming pretty general throughout the metropolitan hospitals. The operation itself, together with the instruments, although variously modified to suit the taste and ideas of the surgeon, all tend to effect one and the same object,—namely, the complete obliteration of the sac formed by the descending hernia. A soldier or a sailor who may have hitherto been considered unsound and as incapable for further service, from being ruptured, can now have his rupture radically cured, with an almost utter impossibility of a return of the malady in the same situation. The closed-up sac, if anything, adds additional strength to the parts. On the 11th inst. we saw a man, sixty-three years of age, in the Westminster Hospital, under Mr. Brooke's care, with a reducible inguinal hernia of ten years' standing, and a stricture of the urethra about the same duration. He had worn a truss for the former, but this apparatus never effectually kept the hernia reduced. Wood's modification, or, as it is now called, Wood's operation, was tried in this instance with perfect success. This operation was fully described, with engravings, in a former 'Mirror.' (The Lancet, vol. i. 1858, p. 531.) We have seen Mr. Henry Lee, at King's College Hospital, lately perform Wützer's operation with success; and Mr. Fergusson very recently successfully treated a case of left inguinal hernia in a young man at the same hospital, using a modification of the plug employed in the operation, which it is impossible here to describe without engravings. At St. Bartholomew's and University College Hospitals, numerous patients are submitted to operative measures with equal relief. The public are now becoming aware of the utility of the operation and the freedom from almost all risk attending it; and the consequence is, a number of applications at our public institutions for surgical relief by those afflicted with hernia.—*Lancet, Jan.* 22, 1858, *p.* 82.

95.—CASES OF FISTULA IN ANO TREATED BY LIGATURE.

By Dr. Draper Mackinder, Gainsborough.

[All the methods of treatment of fistula in ano now in vogue incapacitate more or less for the ordinary duties of business-life; any effectual means therefore that can be adopted for the avoidance of this, which in some cases might involve a pecuniary sacrifice amounting almost to ruin—instead of being allowed to fall into desuetude, should be hailed as a boon to suffering humanity.]

Mr. Luke, of the London Hospital, has revived the treatment of fistula *in ano* by ligature, an operation that possesses attractions not generally recognised, being without danger, and comparatively painless, creating no alarm, and neither requiring absolute rest nor in-door residence.

To make this proceeding as simple and painless as possible, I requested Mr. Ferguson to make me two very fine silver probes and a grooved director, the probes being seven, and the director, five inches long. One of the probes is blunt, and the other sharp-pointed at one end, and both are perforated at the other. These may be easily carried in an ordinary pocket case, and will be found useful on many occasions.

Method of Operating. Having, by previously administering an aperient, prepared my patient for the exploration, I introduce the blunt-pointed probe, armed with silk, into the external opening of the fistula, pass the index-finger into the rectum, search for the opening, seize the extremity of the probe (which is easily bent), draw, it through the anus, and complete the operation before the sufferer is made aware of the nature of his ailment. In the event of there being no internal opening, or that aperture not being easily found, I pass the sharp-pointed probe, alone or aided by the director, along the sinus, and transfix the wall of the gut. The ordinary probes are too short and thick, and inflict much unnecessary pain.

The following three cases are from my note-book, briefly narrated, and tell their own tale.

Case 1. Mrs. B., aged forty-five, mother of a small family, a stout, full-habited woman, of lymphatic temperament, and in comfortable circumstances, consulted me on the 6th of May, 1857, for pain at the pit of the stomach, intercostal spaces, and over the dorsal vertebræ, coming on at 3 a.m., and continuing until the erect position was assumed, there being almost complete inability to move. Pressure over one of the upper dorsal vertebræ elicited pain at the point pressed, at the pit of the stomach, and both sides. Rest, vesication, mercury with chalk, followed by quinine and iron and wine, afforded relief.

On the 20th July she again consulted me complaining of left intercostal pain, numbness of left arm, difficulty of turning in bed, and tenderness over upper dorsal vertebræ, increased by pressure. The bowels were constipated. Calomel and colocynth pills, nitro-hydrochloric acid, good diet and rest, were successful in affording relief.

On the 21st of August, I was again sent for to examine an abscess by the side of the anus, which had a fine fringe of hæmorrhoids. Suspecting its true nature, and knowing the bowels had been well opened the previous day, I at once laid open the abscess, from which about half an ounce of offensive pus escaped. I introduced my armed blunt probe, tied the silk, and completed the operation before my patient knew what was the matter with her. The internal opening was about three inches up the rectum, and between it and the anus I could feel a large pulsating vessel. I kept her in bed, and under the influence of acetate of ammonia and opium for a few days. The ligature came away on September the 4th; no bad symptom was set up, and she has been in capital health ever since.

Case 2. Mrs. S., a thin, exsanguine woman, who had foolishly been suckling her child for the protracted period of two years, sent for me on the 18th of December, 1857, in consequence of the bursting of an abscess about an inch and a half from the anus, and the discharge of some very stinking matter. Pus had escaped from the bowel for three weeks. Nine months previously she had had a fall against the edge of a stone step, which caused pain at the coccyx. The armed, blunt-pointed probe was passed up the sinus to the bowel, about three inches above the sphincter, but no opening could be found, though the probe traversed between the coats of the intestine. A sharp-pointed probe was then pushed through the bowel, brought down, and the ligature tied. She was kept in bed under the influence of acetate of ammonia and opium for a few days; but little disturbance of the natural functions supervened. The ligature came away on January the 8th, and good diet, with gentle exercise, soon established health.

Case 3. Mr. Sharp, resident surgeon to our dispensary, requested me to operate on him for fistula *in ano* in August last. He had a fistula, the inferior opening of which was about an inch from the anus, and the superior opening two inches and a half up the gut. I passed the armed blunt-pointed probe in the manner previously described, and included in the ligature a large pile. The operation was performed in my surgery, and Mr. Sharp afterwards walked home, a distance of some five hundred yards. On the next day, he went to see some of his near patients, and continued to discharge the part of his duties without intermission. The ligature came away on the 6th of September, after which he got much stouter than he had been for some time. Mr. Sharp is a married man, and has passed his fortieth summer; his health has been deteriorating for a considerable time, and he is a martyr to gout and bronchitis; moreover, he is a cripple from early hip-disease, and has a tumour forming in the long head of the biceps of his right thigh. A more unfavourable case could not easily occur, and for such a patient few surgeons would have recommended the knife. As far as the fistula was concerned, the treatment by ligature in this case was all that could be desired.—*British Med. Journal, Feb.* 5, 1859, *p.* 102.

96.—*On the Use of the Ecraseur in the operation for Anal Fistula.* By FRANCIS M. QUINLAN, Esq., Surgeon to St. Vincent's Hospital.—[When we have to deal with the severe forms of anal fistula, occurring as they do so frequently, in persons of a broken-down or debilitated constitution, the use of the ecraseur is peculiarly applicable. The form of instrument improved by M. Charriere is preferable to that originally introduced. One end of the chain is fixed, and the other is tightened by a nut working on a fine screw, each turn of which brings in one-tenth of a link, thus the process of crushing is smooth and perfectly free from jerking or laceration.]

The only difficulty experienced in operating on anal fistula with the ecraseur is in the introduction of the chain. This is most easily accomplished as follows:—A long probe, bent to a proper curve, is passed through the perineal opening of the fistula, into the rectum, and out through the anus. To the eye of this probe is attached a piece of silk cord, the other end of which is firmly tied to the end of the chain (that end which is not provided with the hook or catch, of course, being preferable, from its smaller size). The cord being drawn through the anus, is made tense by the left hand; the operator passes his right forefinger into the rectum, until he meets with the cord passing through the internal opening of the fistula. Hitching this part of the cord on his nail, he pushes it into the rectum, as far as his finger will go; and in this way, by bringing a traction on the chain, as if from the interior of the pelvis, draws it easily and expeditiously into the rectum, and then out through the anus. This method (which was first used and recommended by Dr. O'Ferrall) has the advantage of getting the chain through with the smallest amount of laceration of the parts ; in fact, I have never seen a fistula through which the chain could not be easily passed in this way on the first trial. It is certainly preferable to the plan of introducing it through a canula, or to that of previously dilating the fistula with an India-rubber tube.—*Dublin Hospital Gazette, Jan.* 15, 1859, *p.* 17.

97.—ON TREATMENT OF PRURIGINOUS, PAPULOUS, AND ECZEMATOUS ERUPTIONS OF THE ANUS, &c.

Modern observers have classed resinous and empyreumatic substances, so extensively employed by the ancients, among the most powerful local applications in the treatment of herpetic eruptions. Thus, purified tar, mixed with lard, in the proportion of from fifteen to forty-six grains of the former to an ounce of the latter, is daily used in the wards of the Hôpital St. Louis, as the resolvent, *par excellence*, of scaly eruptions, and as a valuable desiccative in chronic, eczematous, and impetiginous affections. Since the introduction of glycerine into therapeutics, M. Gibert employs this substance as an excipient, in preference to lard. To facilitate its use, the mixture is thickened by the addition of starch, according to M. Garot's process. This preparation posesses the advantage over ordinary ointments made with a fatty excipient, that it is removable by water.

The following is the formula of the *glycérole de goudron*:—Glycerine, one ounce ; purified tar, half a drachm ; and, with the aid of heat, powdered starch, half an ounce. With this quantity of starch, which has been determed by M. Lecocq, we obtain an ointment of thin consistence, and easily spread. The mixture should be perfectly homogeneous.

This application allays itching, (we have seen it rapidly succeed in cases which had for several years resisted various and numerous remedies); it dries up excoriations, checks exhalation, dissipates slight cutaneous phlegmasiæ ; it acts, in a word, as an astringent and resolvent, without producing irritation. Thus, eczema rubrum, impetigo, intertrigo, prurigo of the scrotum and anus, acne rosacea, and subinflammatory mentagra, are, under its influence, most advantageously modified.

Another product very well known to the readers of this journal is the *huile de cade* (oil of pitch). M. Gibert uses it very frequently ; but as the empyreumatic properties which this resinous oil possesses in a much higher degree than tar, are such, that it can seldom be applied in a state of purity, he usually mixes it with oil of sweet almonds, or with cod-liver oil. The following preparation is used, under the name of *huile cadée*, in the Hôpital Saint Louis :—Cod-liver oil, two parts ; oil of pitch, one part. This application possesses very efficacious resolvent and drying properties. M. Gibert has seen eczemas, which had continued for months in a stationary, red, excoriated, and oozing condition, notwithstanding the external and internal use of preparations of sulphur, heal under the influence of this combination.

It is particularly in cases of obstinate pruriginous, papulous, and eczematous eruptions of the anus and genitals, which are so often such a source of annoyance to both the patient and the practitioner, that M. Gibert has most frequently derived benefit from the local use of oil of pitch. He adds, in such cases, the diligent use of cold hip-baths, and, in order to alter the diathesis on which the eruption depends, the internal employment of Dr. Boudin's arsenical liquor, modified in the following manner:—Distilled water, one pint; arsenious acid, three quarters of a grain; dissolve with the aid of heat. The mixture is divided into six vials, each of which is marked for two days; half a bottle to be taken for a dose each morning, fasting, with the addition, at the moment the medicine is swallowed, of a cup of chicory, sweetened with honey. M. Gibert states that he has seen eruptions of several years' standing, and which had resisted the use of thermal waters, and of many other remedies, yield in a few weeks to this mode of treatment.—*Bulletin Général de Thérapeutique.* —*Dub. Hospital Gazette, Nov.* 15, 1858, *p.* 351.

98.—*Irritable Ulcer of the Rectum.*—We lately saw Mr. Fergusson treat an irritable ulcer of the rectum in the same manner as he is in the habit of doing in fissure of the anus. The patient was a young female, who had been an inmate of King's College Hospital, and was a great sufferer from an ulcer situated close to the margin of the anus, but involving more particularly the mucous membrane of the rectum. This ulcer was divided across by a blunt-pointed bistoury, the knife at the same time cutting some of the fibres of the sphincter itself. This course has proved very satisfactory, resulting in complete freedom from pain, and healing up of the sore.

A mere fissure of the anus, or a small ulcer within the rectum, as is well known, produces a most intolerable amount of suffering and misery; and it is as well to bear in mind, that a section of the ulcer, with a few fibres of the sphincter in the former, and a partial division only of the latter, will effect a cure. The fissure sometimes is so small as almost to escape detection, but when it is observed, the treatment is obvious.—*Lancet, Jan.* 22, 1859, *p.* 83.

ORGANS OF URINE AND GENERATION.

99.—ON LITHOTOMY.

By Saml. Smith, Esq., Senior Surgeon to the Leeds General Infirmary.
(Abstracted from a series of Clinical Lectures delivered at the Leeds School of Medicine.)

[It is now more than half a century since Mr. Smith first entered the Leeds Infirmary as a pupil under the celebrated Mr. Hey. In 1819 he was elected surgeon to the hospital ; and in these lectures are contained the result of the large amount of experience necessarily gained in so long a period. At first, along with his colleagues, Mr. Smith used the cutting gorget, but soon, by the advice of Sir Charles Bell, substituted for it the use of the scalpel and the large-grooved staff used by that celebrated operator (of which a plate is contained in his illustrations of the great operations of surgery.) Mr. Smith says :]

You will see that the groove in the staff is made obliquely, so that the scalpel, when placed in it, will cut in that direction. When I first got this staff, I was very proud of it, till I took it to the infirmary, and it was compared by the house-surgeon and others with the Leeds Infirmary staffs. It was laughed to scorn, and thought an especial good joke when, on the first occasion that I tried it on the dead body (for I determined to use it), I was obliged to ask for a scalpel to slit open the glans. However, I persisted with it on the dead body, having a patient upon whom I was going to operate in a few days. There is an old French proverb, and a very good one indeed, "Il rit bien qui rit le dernier ;" and I laughed well, for I laughed the last. In my next operation, this staff went into the bladder as smooth as oil ; and, since that day, these small staffs have been discarded, and the largest staff that will pass the glans is always chosen. In the natural construction of these parts, the urethra within the glans is the narrowest part of the passage ; and if an instrument will pass there, it will usually pass to the bladder. In eighteen out of twenty adults, when there is no stricture, this large staff will readily pass. Well, then, I got my large staff ; and I determined to cast away for ever that murderous instrument, the cutting gorget, and to operate with the scalpel.

Accordingly, on December 2nd, 1822, I performed two operations, one on Thomas Holden, aged 60, in which case that large staff and the scalpel were used : it was very successful, and the patient made a good recovery. The other case was John Horsfall, of Leeds, aged 13. He was also operated on with the curved staff and pointed scalpel. There, again, all went on well, and he had a favourable recovery. This is the stone which was extracted : it is an excellent specimen of the mulberry calculus. During the performance of these two operations, although they were both successful, the feeling that there was a risk of the point of the scalpel escaping from the groove of the staff, occasioned me considerable anxiety. I thought that I should feel much safer if the scalpel were furnished with a beak.

At that time I read a very excellent work recently published, entitled 'Barlow's Essays on Surgery.' The author was an eminent Lancashire surgeon, and part of his book was on lithotomy. From this book I learned the value of the bulbous-ended sound, of the beaked knife, and the more frequent use of the scoop instead of the forceps in the extraction of the stone. The beaked knife, with which he operated with very great success, is represented in this plate; but I show you also one which was made for me afterwards, with rather greater breadth in the blade. I resolved, then, to use it, because I saw that it was exactly like a common scalpel with a beak, and that it would run in a satisfactory way along the groove of the staff; possessing this advantage over the gorget, that you could make your incision through the prostate at any angle you choose. I resolved to use this knife in future; but, after performing a few operations with it, I thought it would be better still to have common scalpels, with beaks and diameters corresponding to the size of the patient and his prostate gland. I therefore got these knives made, which, you will see, are of the common form of the scalpel, but with a beak (or probe-pointed); and I had them of six different sizes. The cutting surface of the smallest which I show you is an inch and a half long, and the blade is five-sixteenths of an inch in diameter; and I had them graduated, each being one-sixteenth of an inch broader than the other, till my largest knife had a cutting surface of two inches and a half in length, and a breadth of ten-sixteenths of an inch. If I had to construct these knives again, I would only have four; and the first should be of exactly the same size as the first I showed you. I would then increase each size one-eighth of an inch, and a corresponding increase of length; so that the largest, or No. 4, should be eleven-sixteenths of an inch broad, and two inches and a half long in the blade. With four knives of this kind, you might safely perform the operation upon any individual; upon a child two years old with the smallest, and upon an adult with a greatly enlarged prostate with the largest knife; taking care, when the prostate gland has been greatly enlarged and its structure changed (and you ought to take the measure of every prostate gland before you take the knife in hand for operation), that a more free division of it may be necessary. And with this knife that incision may be made as free as possible; for, after the gland is cut to the extent of the diameter of the blade, by the introduction of the forefinger of the left hand, it can be enlarged, on withdrawing the knife, to any extent you like.

After performing several operations with Barlow's knife, I then commenced with my own beaked scalpels. With the common scalpel, with Barlow's knife, and with my own knives, I performed in succession twenty-two operations of lithotomy, not only without a death, but without a single untoward circumstance. That was a success which had never been approached at all in the Leeds Infirmary before, and has never been equalled since. The link in my long chain of successful cases was broken thus.

My twenty-fourth case was William Clapham, five years of age, from Knaresborough. He came, with distressing symptoms of stone; was sounded by myself and both my colleagues in consultation, all three being under the impression that a stone was felt in the bladder. An operation was decided on, which was performed by me on the 30th of April, 1832. When the knife had passed through the prostate, along with the rush of urine through the external wound, I noticed floating with it a singular white fleshy substance, about three-fourths of an inch long, and rather thicker than a crow's quill. This escaped with the urine, and fell into the sawdust on the floor. The finger of the left hand being passed through the wound, I could feel no stone. I felt the entire cavity of the bladder, and searched in every direction; still no stone could be found. After a certain time of embarrassment, as you may readily conceive, and the bladder being explored with the female sound by my colleagues as well as by myself, with the same result, the patient was unbound, taken into the Garden Ward, and put to bed. From the moment of the operation he lost his distressing symptoms. The urine flowed freely through the wound; he suffered no more pain, and very little exhaustion. He went on favourably for a few days, when he began gradually to sink, and died on the tenth day. On *post-mortem* examination, it was found that there were two small calculi, not larger than a grain of wheat, in the ureter; one of them being within an inch of its entrance into the bladder, and the other midway between it and the kidney. There was also a calculus of the size of a very small flattened olive in the kidney. Here is the kidney, and you can see the cavity in which it was impacted. But what was the substance which floated away with the urine? Here are the bladder and prostate gland, and you will see that the prostate is fringed with several of these substances; and it was the knife which, in passing into the bladder, divided one at its neck, and separated it. This is the only instance in which I have observed such substances; but, in a prize essay on Lithotomy by my late friend Mr. John Green Crosse, of the Norwich Hospital, he describes a prostate as being surrounded by such substances, and gives a drawing of the same in his twenty-third plate.

There are some little circumstances necessary for you to attend to before the performance of the operation.

1. With regard to the preparation of your patient: in the olden time patients were bled, purged, and kept upon low diet before the operation, with a view to the prevention of inflammation and other diseases. Now, depend upon it, that such preparation will manifestly have a contrary tendency; there is no occasion whatever for any such proceeding.

2. Previously to your operation, the patient should be sounded in consultation; and, silence having been obtained, not only should the sensation communicated to the instrument by the stone be *felt*, but the sound should be *heard* also. In sounding a patient, I advise you to use Barlow's bulbous-ended sound; having an extremity of large diameter it more readily enters the bladder,—the urethra does not form folds in front of it as it passes towards the prostate, but is put upon the stretch. The instrument is therefore more easily and more safely introduced than one of smaller calibre. The extremity only

being of large circumference, and all the rest of the instrument smaller in proportion, it possesses the advantage of greater freedom in its motions when introduced into the bladder, not being held tight by the triangular ligament and muscles surrounding the urethra. If this sound were of equal diameter throughout, it might probably pass into the bladder equally well, but when there, you would not have the same freedom of motion as that afforded by the bulbous-ended sound.

I always like to pass the grooved staff with which I intend to operate two or three days before the day of the operation, and for this reason,—it prevents the bungling which might occur if you were to attempt, when the patient was upon the table, to introduce a staff which would not pass. It is convenient also at this time to ascertain the depth of the perineum, and the magnitude and condition of the prostate gland ; and for this purpose you introduce the oiled forefinger of the left hand into the anus, and place the tip of it on the apex of the prostate. You have thus, previous to the operation, had a rehearsal of that part of it, and you have gained thereby a considerable amount of information. By such examination you ascertain correctly what should be the length and breadth of the beaked scalpel with which the prostate should be incised.

3. Never perform the operation two or three days after your patient has taken a long journey; for the shaking of the stone in the bladder by the exertion of travelling produces, in most cases, a certain amount of irritation, and if you were to operate at such a time, it is very possible that your patient might then be labouring under a paroxysm of the stone, which would add much to the danger. Therefore wait till such irritation, if it has taken place, shall have subsided, or, if it has not, till there is no probability of its occurring.

4. There is a little dodge which I have practised with regard to children. You are aware that our lithotomy patients, after the operation, are carried into the Retreat, or Garden Ward. We have in the garden two detached wards, and these possess this great advantage, that a patient having undergone so very important an operation, is not after it subjected to the hospital atmosphere. Before this proceeding was adopted I can remember, in one instance, when the external incision, after lithotomy, was attacked with hospital gangrene. I do not like little boys to go, for the first time, direct from the operation-room into the Garden Ward; I prefer having them in the Retreat with the nurse, to whom they will then have formed an attachment of some days duration previous to the operation; for if a little boy has been a week under the charge of a nurse in the house, and should be immediately after the operation be placed under the care of a stranger, he frets, and is unhappy, wanting the face and voice he had learned to love. I consider this a point worth attending to.

5. On the day of the operation, let the perineum be shaved. Let

an enema be administered an hour or two before the operation, so as to have the rectum empty. Let the patient also retain his urine, according to circumstances and the irritability of the bladder, from half an hour to an hour, or even two hours. Your patient is now prepared, and you are ready for the operation.

I propose now, in the simplest language possible, to describe to you the manner in which I perform this operation myself, and which I hope you will follow. I shall do it in such plain terms that "he who runs may read, and a wayfaring man, though a fool, shall not err therein."

First, then, as soon as you enter the operation-room, it is necessary that you should see that every provision is made for the satisfactory performance of the operation. Go towards the table where the instruments are placed, and see them all, examine them well, and choose the scalpel with which you intend to make the external incision; take care that it is sharp both at the edge and point, and that it is of proper dimensions for your patient. Examine the beaked scalpel you have previously chosen, and ascertain that the beak will run smoothly in the groove of the staff. I recommend you to have two small trays. Upon the first you will have laid out every instrument which is always required, and on the second, those which are only occasionally wanted. The instruments you always require are the two scarlet bandages with which the patient's hands are to be secured to the feet, a little oil, the grooved staff, scalpel, lithotomy knife, and various forceps and scoops. On the second tray, artery forceps, a tenaculum, silk ligatures, blunt gorget, forceps, with a lateral curve, the elastic gum tube, and lint for cases of hemorrhage, and which you saw used with immediate success at my last operation; for although no artery of magnitude was wounded, there was very considerable loss of blood from veins, and that hemorrhage was restrained at once by the elastic gum tube surrounded by lint. A pair of neat dressing forceps is very useful, indeed, where any small fragment of stone is left in the bladder. I remember a case two or three years ago, where I had a small fragment on the tip of my finger, and which I found could be seized at once with a pair of forceps of this kind, but they were to be sought and found when I wanted them, and some little delay took place in consequence. It is proper, therefore, to anticipate anything of this kind. The straight probe-pointed bistoury, which I have described, is occasionally useful, but only in those cases where the prostate gland is of unusual dimensions and firm structure. A blunt gorget is sometimes useful as a guide for the forceps. Have a towel in the front pocket of your dress, so as to be ready in a moment to wipe the finger if it should be soiled. See that the nurse is provided with sponges, towels, and basons of hot and cold water.

Let me now describe to you the manner in which these bandages should be applied to secure the patient. There is a knack in doing this properly. The loop round the wrist, recommended by some is quite unnecessary. It is disagreeable to the patient, because it makes a knot which is very uncomfortable. First, draw the hand down to the sole of the foot, place the thumb over the dorsum, and the four fingers to the sole of the foot, then, with the help of an assistant keep the wrist in perfect contact with the ankle, pass the bandage firmly three times round, and then give it the figure of 8 turn, in such a manner that from the wrist it shall first pass over the knuckles, and lastly over the fingers; if you allow it to come in contact with the points of the fingers first, and lastly over the knuckles and back of the hand, it will not be so neatly accomplished, and will be more likely to slip; finish by passing it again several times round the wrist and ankle, and then place the pin in a place not likely to inconvenience the assistant who holds the foot.

I introduced the scoop into more frequent practice here about thirty years ago, in consequence of reading Barlow's book: but I only discovered this month that our scoops have never been properly made according to his directions. This is the form of scoop which has been used here above thirty years, and you will see that it is more of the form of a spoon than this new one, which I have had made from the plate in Barlow's book. This new scoop is bent much more than the old one, which allowed the stone to slip. Remember, that in using the scoop you must use it very much as you would a pair of forceps, making the other blade with a forefinger of your left hand. The stone being once secured in the scoop, must be pressed upon by the forefinger of the left hand while you extract with the right, you thus, if you use Barlow's scoop, prevent the possibility of its escaping. I also wish to show you an instrument made for me, and which I have found very useful on several occasions. I mean these forceps, with one blade a little longer, and overwrapping the other in such a manner that, when the stone is once grasped, it can be easily extracted without danger of its slipping, and without the necessity of that firm grasp to prevent slipping, which occasionally causes the stone to break. Here is the first calculus which was extracted with this instrument in October, 1842. But I have had the instrument improved on the French principle. In these new forceps, when the blades are opened, there is little or no separation of the handles from each other, and consequently no stretching of the wound when the blades are in the bladder. For a flat oval or small calculus these forceps are of great value, because when the finger is once upon the calculus, you can push it into the blades of the forceps, and when once in you can, if necessary, change its direction, and this without subjecting the parts to any extraordinary pressure, which would be the case with a pair of lithotomy forceps. Ascertain that the operation table, and the chair on which you are to sit, are suitable for your own size. If you find the latter too low, have two or three pillows placed on it.

The patient having been placed on the table, the first part of the operation is for the assistant to apply the bandage to the right hand

and foot, in the manner previously described. Now I say the assistant must do this, because it requires the exertion of a considerable degree of strength; and, by doing it himself, the operator might render his hand unsteady. After the right hand and foot are bound together, introduce the staff, feel the stone, and hear it; obtain silence, and let the bystanders also hear it. When then is done, the assistant will tie the left hand and foot together, in the same manner as the right. The patient must now be placed in position; he must be drawn down so that the breech shall come close to the edge of the operation-table, or even overhang it a little. He must now be secured in a steady position: and this can only be done by the assistance of three men. One sits astride the operation-table, with a pillow upon his breast, to support the head of the patient, whose wrists he holds; another stands at the right side, grasping the knee with his left hand, and the sole of the foot with his right; a third, placed at the left side of the patient, does the reverse. These two individuals, placed on each side, can separate the knees, and prevent the patient from drawing them together, which he will have great inclination to do. He being now properly placed and everything ready, the staff is given into the hands of the assistant. It is put in the proper position and made rather prominent in the perinæum. I do not like to hook up the curved staff in the way recommended by Liston. I like to be pressed a little, so as to make the membranous part of the urethra rather more superficial. I introduce the forefinger of the left hand, previously oiled, into the anus, and place the extremity of it on the apex of the prostate. This manœuvre you have previously rehearsed, and you therefore know exactly how deep it is situated. Keep the finger on the prostate in this position; then, take the midfinger of the same hand, and place it in front of the scrotum, about half an inch below its termination, and in the line of the raphe; then place the thumb of the same hand upon the tuberosity of the left ischium. By this means you keep the integuments in the line of your incision on the stretch. The scalpel is now given into your hand, and you hold it in the same manner as you would a pen. Knowing, from previous examination, the depth of the perinæum and the situation of the prostate gland (and in making your calculations, for you have thought intently on these subjects), you place the middle finger on the back of the scalpel, at that point to which you intend to plunge the instrument into the perinæum. The integuments being upon the stretch, you place the point of the scalpel a few lines to the left of the raphe, about three-quarters of an inch or an inch below the termination of the scrotum, and you plunge it deep, daggerwise, into the perinæum, aiming towards the apex of the prostate, but remembering that, although your finger is placed in the rectum, and touching the apex to give you an indication where that it is to be found, it is still placed as a sentinel on guard over the rectum. There is this sort of intelligence betwixt the right hand and the left, that you are not likely to run the scalpel into your own finger; but you will endeavour to come within about half an inch of that point, and then you are safe: you know and feel that the rectum is uninjured, and you go down in an oblique line, as if you were aiming towards the thumb which is stretching the integuments upon the tuberosity of the ischium. As you proceed lower with your incision, you withdraw the scalpel a little, so as not to cut so deep, as you are cutting close by the side of the rectum. When you have got beyond the anus, and see that the transversalis muscles are fairly divided, you may then make a gentle curve away from the tuberosity, and finish your incision at a short distance (varying with the bulk of your patient) below the anus.

Now, I am occupying a great deal of time in describing to you that which is done in a moment. I shall be nearly an hour in describing what you will accomplish in two minutes. Your external incision is probably complete at one stroke. Withdraw the forefinger; plunge it into the wound, and feel its whole length; and, if you find any muscular fibres or fascia interposed, which might offer resistance to the extraction of the stone, press the finger down upon that part, and gently divide it with the scalpel. You have now to cut into the membranous part of the urethra. Probably you may find it an advantage to alter in a slight degree the position of the staff. You now place the forefinger of the left hand upon the apex of the prostate within the wound, and carry the scalpel over that finger, with its cutting edge upwards; you feel the groove of the staff, and perforate it with the point of the scalpel, and cut a little upwards. Your staff is large; the urethra is on the stretch, and the wound in it gapes. Insert immediately the nail of the forefinger into the groove, or, what will do equally well, keep the point of the scalpel there, with its cutting edge directed upwards; hold it with the left hand; take the beaked scalpel in the right; pass it along the side of the scalpel to its point. Withdraw now the common scalpel, and give it into the hands of an assistant. Feel, and let the assistant who holds the staff also feel, that the beaked instrument is correctly in the groove. You leave your chair; stand up; take hold of the staff with the left hand, and, keeping the beak of the scalpel at an angle, pressing firmly against the groove, you depress the handle of the staff. And now comes the most important part of all; that is, the line in which you are to make your incision through the prostate gland.

Your incision must be made in such a manner as to avoid two evils; for, in this case, you have to sail between Scylla and Charybdis. Here is your Scylla—the rectum. Here is your Charybdis—very important blood-vessels. If you were to carry the knife straight down in the perpendicular line, you would infallibly slit open the rectum. If you carried it directly across in the transverse line, you would very probably wound the artery of the bulb, or other vessels of great importance. You are to carry your incision through the prostate in the median line betwixt these two, and then you avoid both these evils.

But I prefer rather that it should be a slight degree nearer the transverse line than the perpendicular one; and this direction is shown by the dotted line in the diagram.

Therefore, the staff being grasped, and the handle depressed to this angle, and the beaked scalpel held at this angle, with its edge directed according to the dotted line, push boldly forwards into the bladder. There is not much danger of its slipping, although you are using a curved staff. As it is held in its first position, you cut into the curve of a grooved staff: but if you take the handle of the instrument, and depress it in this position, with the beaks of the scalpel pressing into its groove at an obtuse angle, it is then a straight staff; the curve is all in the bladder; and you have to go on a straight line. Great part of the instrument being within the bladder, it lifts it up from the rectum, and you will run no risk of wounding it. In all my operations, I have wounded the rectum twice only, and never with the beaked scalpel. In the two instances in which it was done, it was in making the external incision: it was very slight, and followed by no evil consequences; in both cases the patients recovering just as favourably as if no such accident had occurred.

The beaked scalpel having being passed through the prostate into the bladder a gush of urine through the external wound immediately takes place. You now withdraw the beaked scalpel, introduce the forefinger of the left hand into the bladder, *and on no account withdraw the staff till the stone is felt.* You will almost invariably be able to feel it, if you have a tolerably long finger, unless your patient have an enormously enlarged prostate. Any person with the shortest of fingers can readily do this in boys. In adults with enlarged prostate, it is sometimes difficult. I have met with two instances, and two only, whether in my own or other operators' cases, in which I could not feel the stone. One was in the last operation but one which I have described, and where the gland was so enlarged that the middle lobe came in the grasp of the forceps in front of the stone, and was then divided, the man doing well. As soon as the forefinger is placed in contact with the stone, the staff may be safely withdrawn. You now instantly come to a conclusion as to what will be its size, position, and form; and what will be the most suitable instrument for its extraction. If the stone be very small, it may either be extracted with forceps or scoop. If the incision be tolerably free, you can readily introduce a pair of forceps or a scoop upon the finger, as a director. If the parts should be very tight, and you find you cannot sufficiently dilate them with the finger, and you believe that there will be difficulty in the introduction of the forceps, pass over the finger (while the tip of it still touches the stone) a blunt gorget without beak. They will be thus readily and safely passed into the bladder; and, the exact position, size, and shape of the stone being known, it will be grasped at once, without any searching.

I consider the seizing and extraction of the stone to be one of the most important parts of the operation, and that on which its success mainly depends. It requires very considerable manual dexterity, the great point being to seize the stone in the most favourable position for extraction. A very considerable majority of urinary calculi are in the oval form; and you see that it would be a very unfortunate thing if you were to grasp a stone, and endeavour to extract it in this manner, with the long diameter across the blades of the forceps. But if, when the stone is once grasped, and before you begin to move it, you place the forefinger of the left hand in the wound, and ascertain its position, it is very easy to place the stone more favourably for extraction, viz., with its long diameter in the axis of the wound. Here is a calculus of a flattened oval form, which I extracted last Monday; its dimensions are two inches and one-eighth, by one inch and a half. It was coming with the long diameter across the wound, and could not be extracted in that position; but, by turning the forceps one quarter round, it came out with ease. If I had persevered in attempting to extract that stone with violence, very considerable mischief must have ensued. (April. This man made a good recovery.)

Now all these little things which take me so long to describe must be done in an instant. You must feel yourself placed in the position of the general of a great army. You must attend to every point, and any little difficulty must be obviated in a moment. If possible, grasp the stone with the forceps before the finger is withdrawn from the bladder. When you feel it and examine it, you can tell very well whether it is of a hard compact material (as lithic acid), or whether it is of a soft and friable nature, and you thus are able to estimate the amount of pressure that may be safely applied to it; for it is very desirable that the stone should, if possible, be brought away entire. When it is grasped by the forceps, always extract it in the line of axis of the pelvis. If you pull upwards you seriously contuse and lacerate the cellular tissue behind the pubis; you do mischief which may be the cause of infiltration of urine and death. Let your extraction be forwards and downwards. Hold your forceps firmly, and with the left hand depress, at the same time that you pull forwards with the right.

If there be any difficulty, stop and ascertain the why and the wherefore. Do not attempt by brute force to overcome this, but by gentle persuasion and perseverance, It is a great deal better that you should be one, two, or three minutes in gently dilating the parts, so as to allow the stone to pass with safety, than by extracting with great force, to gain a little time at the expense of irreparable injury. In those cases where you cannot at once feel the stone with the finger, and where you have to search for it with the forceps, do not grope about with the blades open, but search the bladder with them closed. When you tap the stone, then, and not till then, open them and grasp it.

We will suppose that the stone has been grasped and safely extracted; there is another consideration. Is there another stone? If any one of you had extracted that stone you would know at once there was another. You would see that there are two polished surfaces worn away by attrition. Therefore, when you see any mark of this kind on the stone, you examine with the finger, and you find another. Perhaps you cannot feel it with the finger, then sound with the bulbous ended sound, and do not be satisfied with your own exploration, but give the sound into the hands of your assistant, and let him sound and be satisfied.

A few years ago I performed the operation upon a patient, and took away three or four calculi of the size of very small chesnuts. I thought there might be another. I sounded, but could not feel one. I gave the sound into the hands of my colleague, who sounded carefully and gave his opinion that there was not another, and the patient was unbound and sent to bed. But there was another calculus, and it came away by the wound. How do you account for this? It takes place in this way. Many years ago, I operated on a little boy (and it was a few years after that operation which I have described to you, in which no stone was found). In this case I could not feel one, and I was in considerable embarrassment for some time. My colleague, Mr. Chorley, examined also, but neither could he discover one. I then got the female sound, and detected it grasped in a fold on the fundus of the bladder, which had contracted upon it at the time of the rush of urine on the division of the prostate; it was not sacculated, which is a very rare thing. I brought the stone down from that point, and it was readily extracted. Now the probability is, that this calculus, which defied detection and came away through the wound had been grasped in a similar way, and thus eluded our search. If you feel another stone, proceed according to circumstances, that is according to its size, to extract with the scoop or forceps, as occasion may require.

You now sponge the wound, clear away any blood which may have coagulated in it, and examine whether there be any artery bleeding which requires ligature. If there be nothing but a slight oozing of blood, it requires no attention; but if an artery is throwing out its blood vigorously, *per saltem*, seize it with the tenaculum, or artery forceps, and tie it at once. Examine the wound very carefully, and if there be nothing requiring ligature, let the patient be unbound; dip the finger in oil, lard, or spermaceti ointment, and plunge it to the bottom of the wound so as to lubricate the deeper parts, by that means you prevent them from being glued together at an early period. Were such adhesion to take place, it might prevent the flow of urine, and possibly give rise to infiltration; but the parts being besmeared in the manner recommended, obstruction is prevented, and the urine readily flows through the wound in the course of an hour or two after the operation. This plan answers the same purpose as the elastic gum tube, and is less irritating.

The patient being unbound, cover the wound with a piece of soft dressing the breadth and length of your three fingers. Previously to removing him from the table, let him see what to him will be a very gratifying sight, viz., the stone which you have extracted. I sometimes hold it up between my fingers, and say, "It is a great deal better where it is than where it was, is it not?" The man is pleased, and goes away in good spirits.

[With regard to the after-treatment, Mr. Smith observes:]

First, when the patient is put to bed, if he be not very young, give him an opiate, and watch him very narrowly for several hours. You are anxious to see that the urine flows through the wound at an early period; and you also wish to see that no hemorrhage ensues, which would produce inconvenience, and might endanger life. He is placed on his left side, with the knees gently drawn up towards the abdomen. One very important point to attend to is the management of the "draw sheet." A sheet is folded in four folds, and one end is rolled up like a calico bandage; the patient's breech rests upon the other end, while the roller portion lies by his side. In the course of an hour or two after the operation, you expect to find this sheet soiled and stained by bloody urine that has flowed through the wound. This is a satisfactory sign. You now order the soiled portion to be drawn away; and the patient's buttock rests upon a dry part of the sheet. Perhaps the next stain it receives contains a very slight tinge of blood.

If, in the course of four or five hours, you observe that the stain is purely from urine, without any discoloration, you are satisfied that all is going on well. But if, on your visit to the patient two or three hours after the operation, you find the sheet is unsoiled, that there is no discharge from the wound, but that its sides are glued together, the case is not going on satisfactorily, and interference may probably be required. If this condition be not remedied, your patient will soon begin to experience pain and distress from distension of the bladder by urine, and perhaps also by coagulated blood. If you think the proper time has arrived, do not delay, but at once pass the forefinger (previously oiled) through the wound into the bladder; and the urine will immediately flow. If that is not sufficient, you may with great propriety, after a few hours, insert the tube, as recommended by Mr. Liston from the first; but do not insert this tube unnecessarily. I am sure it sometimes does harm; and I have very rarely found it necessary. If you attend to this condition early, and make with your finger a free passage from the bladder, you will, as a rule, have done all that is required. It is of very great consequence that this should be attended to in the first three, four, or five hours. If neglected, it may be the cause of infiltration of urine.

If two, three, four, or five hours after the operation, there be such a degree of hemorrhage as to give you uneasiness, clean and sponge the wound well, and carefully examine it. If you see an artery pouring out its blood, tie it. If there be venous oozing to any extent, introduce the tube surrounded with lint, so that the naked extremity of the tube for an inch and a half shall penetrate through the prostate into the bladder, and that part surrounded by lint come into contact with the wound. This will arrest any hemorrhage, except from an artery of magnitude. It is generally advisable to allow the tube to remain from twenty-four to forty-eight hours. I have not found it necessary to introduce this tube above three or four times in all my experience.

See every day that the nurse is very attentive to the draw sheet. This is of very great importance, because, if you have a negligent nurse, who allows the patient to remain with the buttocks on the soiled sheet hour after hour, you will have excoriation of these parts. Therefore see that the buttocks are well washed with a sponge, dried with a towel, and that the draw sheet is moved constantly from under them when soiled ; this can be done without any fatigue or disturbance of the patient. As it comes forward, you fold it like a bandage *on the soiled side*, and secure it to the bed ; you then secure your patient from the annoyance which he would suffer from the smell of evaporating urine, if the sheet were left unfolded and exposed to the air.

All going on well, and no untoward symptoms having taken place for four days, you may begin to give your patient more generous diet. I have adopted Martineau's plan for many years. I give a little beer and a little meat after the fourth day, and I have never had occasion to regret doing so.

After the urine has ceased to flow by the wound for three or four days, strap it up with adhesive plaister ; you gain time by doing so. The length of time that elapses before the urine ceases to flow by the wound varies. In boys, it is generally from seven to ten days ; in adults, a few days more. It is very beautiful to see how suddenly a patient under these circumstances improves in his personal appearance. Previously to the operation, he has been subjected to great anxiety of mind, as well as great bodily pain ; but, having seen the stone in the hands of the surgeon, his mind is at ease, and he sometimes thrives rapidly from that moment.

[The last few years chloroform has not been indiscriminately administered in every case, and the fatal results in all surgical operations have been much less numerous ; and Mr. Smith believes that in some cases after-effects remain of a serious character.]

My last four colleagues in the infirmary have all performed the operation according to the plan recommended by the late Mr. Key—that is, with the straight staff and long-pointed scalpel. It gave me very great pleasure, many years ago, to have reported to me by an old pupil of this infirmary, that Mr. Key, in his lectures on lithotomy as performed with the scalpel and straight staff, was in the habit of mentioning my name as a provincial surgeon who had discarded the use of the cutting gorget, and had operated with the staff and scalpel twenty-two times in succession without a death. I suspect Mr. Key would not have been able to make that statement if I had operated with his staff and his scalpel. My opinion is, that a beaked scalpel is safer than one without, and that a curved staff is also safer than a straight one. Let me enumerate the advantages which you possess in having a curved staff.

1. In the first position, it makes the membranous part of the urethra more prominent, and consequently more easily reached; that is to say, it pushes it forwards, and makes it more superficial.

2. It is a far better and more efficient sound than the straight staff. It will explore all parts of the bladder; and, having the same curve as the urethra, it is much more easy of introduction.

3. When introduced, there is no possibility whatever of its escaping from the bladder, however the patient may struggle. If the handle of the curved staff is held, it is impossible for the point of it to escape in front of the prostate. Let us prove this. Here is the pelvis, placed in position for the operation; and here is the curved staff, also placed in position. You perceive at once it is impossible for it to slip out, however the patient may struggle. Now let us put alongside of this curved staff Mr. Key's straight staff, and see the difference. See how easy it will be for Mr. Key's instrument to escape in front of the prostate gland. If such an accident were to happen (and it has happened), what would be the consequence? The knife would pass between the rectum and the bladder, and perhaps wound the rectum.

4. Previous to the division of the prostate, and when the curved staff is placed in its second position, it lifts up the bladder from the rectum, and consequently renders it less liable to be wounded.

5. In the second position, when the handle is depressed, it is to all intents and purposes a straight staff for the passage of the knife. Let us prove this. Here is the first position, the membranous part of the urethra being rendered prominent. When the membranous part is penetrated, the handle is depressed, and it becomes a straight staff, the curve being quite within the bladder. You can thus run the beaked knife along the groove in a straight line through the prostate.

Now, then, with respect to the straight staff.

1. It is introduced with much greater difficulty than the curved staff. The very appearance of it will tell you this; and, if that does not satisfy you, try them both upon the dead body.

2. The straight staff is a very imperfect sound. There is often difficulty in feeling the stone with it; and I have known several instances where the straight staff has had to be withdrawn, that the bladder might be sounded with the curved sound, and then reintroduced for the performance of the operation.

3. This is my greatest objection to it. It penetrates such a short distance beyond the prostate gland, that there is very great danger (during the struggles of the patient) of its slipping from the bladder in front of the prostate. I consider this danger so great that I have invariably, for more than twenty years, refused the responsibility of holding the straight staff in this operation.

4. The membranous part of the urethra is not rendered so prominent or so easy to find with the straight staff as it is with the curved; and the pointed scalpel is never so safe as the beaked one, for the reasons I have given you. Some years ago, at Weiss's establishment in the Strand, I made inquiry, and they informed me that they were now never asked for Key's straight staff; that they did not make them; and, so far as they knew, their use was exploded.

Mr. Fergusson, in his very excellent work on *Surgery*, concludes his observations on the lateral operation of lithotomy in these words: "The highest averages of success, one death in five, in six, seven, or eight, have been obtained in this way, by Cheselden himself, and by many who have imitated his movements; among whom I may enumerate, as perhaps the most successful, Messrs. Martineau and Dalrymple of Norwich, Mr. Crichden of Dundee, and Mr. Liston, whose operations I often witnessed in former years with admiration."

I have now proved to you that my success in this, the great operation of surgery, has been equal to the best number mentioned by Mr. Fergusson; and that seven out of eight upon whom I have operated have been, by the infliction of a few minutes of pain, at once relieved from the most dreadful sufferings (perhaps endured for years previously), and saved from a certain and miserable death. Were this success the only result of the exertions of my long professional life, I should feel that I had not lived in vain, or failed on my part in rendering those great benefits that our profession glories in conferring on our fellow-creatures.—*British Medical Journal, Jan.* 1, 8, 22, *and* 29, 1859, *pp.* 9, 23, 65, 84.

100.—STATISTICAL ANALYSIS OF 186 LITHOTOMY OPERATIONS.

In the subjoined analysis, all the cases of lithotomy are included which occurred between January, 1854, and July, 1857, at the following hospitals, viz.:—

Addenbrooke's (Cambridge), the Bristol General, the Cheltenham General, the Cumberland (Carlisle), the Derby General, the Dorset County (Dorchester), the Dundee Royal Infirmary, the Glasgow Royal, the Gloucester, the Hull, the Leeds, the Leicester General, the Liverpool Royal, the Liverpool Southern and Toxteth, the Queen's, Birmingham, the Sheffield General, the South Staffordshire (Wolverhampton), the Staffordshire General (Stafford), the Sussex County (Brighton), the West Norfolk and Lynn (Lynn), the York County.

During the three years and a-half over which our statistical Reports extended, 186 cases of lithotomy were recorded as occurring in the different metropolitan hospitals. It thus appears that an average of 40 patients a-year are operated on for stone in the bladder, or in other terms, not quite one a week. This number, seeing that our list comprises thirteen hospitals, several of them large ones, is certainly smaller than might have been expected. The modern practice of crushing has no doubt rendered this number somewhat smaller than it would otherwise have been; but that it has not greatly diminished it, we shall have to show in a subsequent analysis of the lithotrity operations performed during the same period.

Of the 186 cases, 146 resulted in recovery, and 40 ended in death. Of the whole number, 137 were under the age of 20, and of these 123 recovered and only 14 died; while of the 49 in which the patients were adults, we find but 23 recovered, and no fewer than 26 died. These figures show in a very strong light the influence of the age of the patient upon the prospects of a lithotomy operation. We shall now proceed to exhibit the extent of this influence in greater detail, and then to examine as to the several causes of the fatality of this operation, and their relative importance.

Influence of the Patient's Age on the Prospect of Recovery.

In the subjoined table the cases have been classified according to the patient's age:

Age.	No.	Recovered.	Died.	Per Cent. of Deaths.			
1	1	1	0	0		Under 10 years of age.	8 deaths in 100 cases, or 1 in every 13·6.
2	8	7	1	12·5	1 in 8		
3	24	20	4	16.6			
4	15	15	0	0			
5 to 8	43	40	3	7	1 in 14		
8 to 10	18	18	0	0			
10 to 15	21	15	6	28·5	1 in 3·5	Between 10 and 25 years of age.	7 deaths in 36, or 19·4 per cent. or 1 in every 5.
15 to 20	7	7	0	0			
20 to 25	8	7	1	12·5	1 in 8		
25 to 30	3	2	1	33·3	1 in 3	Between 25 and 45.	4 deaths in 8, or 50 per cent. or 1 in every 2.
30 to 35	3	1	2	66·6	2 in 3		
35 to 40	2	1	1	50·0	1 in 2		
40 to 45	0	0	0	0			
45 to 50	3	1	2	66·6	2 in 3	Between 45 and 60.	9 deaths in 17, or 52·8 per cent. or more than half.
50 to 55	5	3	2	40·	1 in 2·5		
55 to 60	9	4	5	55·5	1 in 1·8		
60 to 65	7	1	6	85·6	6 in 7	Between 60 and 75.	12 deaths in 16, or 75 per cent. or 3 in every 4.
65 to 70	7	3	4	57·0	4 in 7		
70 to 75	1	0	1	100·			
75 to 80	1	0	1	100·			
Total ..	186	146	40				

Thus it would appear that between the ages of 8 and 10 is the period in which the lowest death-rate after lithotomy prevails. Of 18 operations performed on patients between these ages all resulted in recovery. If we group together all between 5 and 10 we shall have 61 cases, out of which only 1 in 20 ended fatally. Children under the age of 5 appear to bear the operation not so well as those a little older, since of 48 operations 1 case in 9 ended in death. If we pass by the fact that no death appears to have occurred out of the 7 cases between the ages of 15 and 20 as probably (on account of the smallness of the number) a coincidence, we may allege that amongst adults the rate of mortality rises with the age of the patient. Of those under 10 only 1 death in 13·6 cases occurred; in those between 10 and 25 the rate has risen to 1 in 5; in those between 25 and 45 it has reached 1 in 2; between 45 and 60, it is actually more than half; while subsequent to the age of 60 it attains the frightful proportion of 3 in every 4. There can be no doubt that this appalling mortality in patients of advanced age is in part produced by the fact that of late years the best subjects have been treated by lithotrity, and that, in the hands of many surgeons only those patients not considered to be in sufficiently good health to bear the latter have been submitted to lithotomy. Still we regret to know that this circumstance has but a very limited application, since lithotrity has been practised to a very small extent.

The explanation of the comparative freedom from risk in young patients, is to be found in the fact that disease of the kidneys is a very common concomitant of vesical calculus in grown-up persons, and a very rare one in children. The tables about to be adduced, exhibiting the cause of death at the several ages, will show that of all the various evil influences, renal disease is by far the most important. In the list of 14, however, in which death was referable to it, we find only three cases in which the patients were under 20, and only 1 in which the child was under 10. On the contrary, of the four who died of sthenic peritonitis, all were under 20, and 2 under 10. Peritonitis, hemorrhage, and shock of the operation, rank as the chief causes of death in childhood.

Much importance has been attached by some writers to the weight of the stone as a means by which to estimate the risk incurred. The heavier the stone, the greater the danger. To Mr. Crosse, of Norwich, we owe a valuable collection of data on this point. Quoting Mr. Crosse's tables, Mr. Coulson, in his work on diseases of the bladder, actually goes so far as to assert—"The chance which a patient has for recovery can, therefore, be calculated beforehand, and, independent of every other consideration, from the ascertained dimensions and weight of the stone." The statistical fallacy here involved is transparent. Of course children have, as a general rule, much smaller calculi than adults; and, as we have seen above, they are, by very far, the best subjects for lithotomy. The cause of the freedom from risk in children is not, however, to be found in the fact that their calculi are lighter, which is little more than a coincidence; but in their usual freedom from renal disease. Of course no one will deny that the large size of a stone is a circumstance of some prejudice to a patient's prospects. A surgeon would, however, commit an absurd error if he should imagine that a boy of ten, from whom he had removed a mulberry calculus weighing several ounces, had only an eighth part of the chance of recovery which was possessed by a man of sixty from whom a phosphatic one of not as many drachms in weight had been removed. In all probability the reverse estimate would be nearer the truth. The fallacy to which we have referred, viz., that difference in weight of the stone is, as a rule, coincident with difference in age of patient, appears to us to make any statistical calculations of weights quite valueless for purposes of prognosis. All that can be said is that of patients of equal age and similar degree of health, those who have large calculi have a somewhat worse chance of recovery than the others, and even this rule must be allowed to receive constant modifications, from consideration of the composition of the stone in each individual case. Leaving what we have to adduce, as to the influence of the previous health of the patient upon his chances of recovery after lithotomy to another part of the report, we will now pass to

Cases of Death after Lithotomy.

In the following list we have endeavoured to classify the cases according to the accident or lesion which appeared to have exerted the most efficient influence in bringing about the fatal event. In many cases, of course, more than one had been at work at the same time. Thus some cases in which the main lesion appeared to be disease of the kidneys had also inflammation of the bladder and of the pelvic cellular tissue; while in others, which died ultimately of some distinct visceral disease, hemorrhage occurring during or after the operation, might be reasonably supposed to have diminished the patient's chance and predisposed him to the attack. The classification is therefore only an approximation to the truth, and must be so considered. Proceeding on this plan, we find that of the forty cases ending fatally, death was referred to

Renal disease	in 14 instances.
Hemorrhage	„ 4 „
Pyæmia	„ 4 „
Peritonitis	„ 4 „
Shock of operation . . .	„ 2 „
Extravasation of urine . . .	„ 2 „
Abscesses about the bladder . .	„ 2 „
Wound of the fundus of the bladder by the knife . . .	„ 2 „
Exhaustion	„ 1 „

Convulsions	in	1	instance.
Cystitis	„	1	„
Bronchitis	„	1	„

In the remaining two cases we do not possess sufficient detail to allow of our assigning them to any class without risk of error.

Renal Disease as a Cause of Death.

In the following table we have arranged the fourteen cases in which disease of the kidneys was the lesion to which death was attributable:

No.	Age.	State of Health.	Date of Death.	Remarks.
126	10	Delicate	11th day	Stone weighed 2 dr. Both kidneys disorganised.
41	14	Bad	11th day	Much bleeding; protracted operation; peritonitis.
31	14	Moderate ..	4th week	Abscesses in the right kidney.
12	21	Good	10th day	Stone large: acute inflammation of kidneys and ureters.
103	37	Bad..	3rd day	The subject of diabetes insipidus.
53	54	Very bad ..	6th day	
171	56	„	2nd day	Stone large; he sank from the shock.
73	58	„	15th day	Had suffered from stone for ten years.
140	59	Hopelessly ill	2nd day	Stone large; extensive disease of liver, kidneys, and bladder.
147	63	Bad..	6th day	Calculi in the kidney; acute inflammation.
109	64	Good	19th day	Two large phosphatic stones; abscess behind the bladder, as well as diseased kidneys.
86	65	Very bad ..	3rd day	Stricture of the urethra.
94	68	„	4th day	He was paralytic; acute inflammation of bladder; cystic disease of both kidneys.
116	68	Feeble	12th day	Calculi in the kidney; small stone.

We have not included in the above list those cases in which acute disease of the kidneys appeared to be secondary to a general pyæmic state. In most of those included there was reason to believe that renal disease existed prior to the operation. It will be seen that in two instances the patient sank on the second day, no doubt directly from the shock of the operation, while in five others death occurred within a week. In two cases the operation was done at the patient's urgent request in hope of mitigating his sufferings, but under circumstances which almost preluded the hope of recovery.

Hemorrhage as a Cause of Death.—(Five Cases.)

In the following five cases, so much blood was lost either at the time or afterwards, that it seemed fair to attribute the patients' ill progress to the debility induced.

No.	Age.	State of Health	Date of Death.	Remarks.
20	5	Good	8th day	Five or six attacks of secondary hemorrhage.
41	14	Bad	11th day	Free bleeding at the time, none afterwards.
157	26	Poor	6th day	Severe hemorrhage on same day (venous).
4	45	Fair	40 hours	The bleeding was venous, and at the time. There was a growth of cancer in the bladder.
131	79	Good	7th day	Secondary hemorrhage on the 3rd day.

In only the first and third of these was the fatal event directly and unmistakeably induced by the loss of blood. In the others the hemorrhage acted rather as a predisponent. It is interesting here to remark that the two cases in which of all in our list most blood was lost, both recovered. In one of these there was little doubt that the internal pudic had been cut, and the hemorrhage was most alarming. Case, number 41, is one in which the cause of death was very complicated. It has already been mentioned among the deaths from renal disease.

Pyæmia as a Cause of Death.—(Four Cases.)

No.	Age.	State of Health.	Date of Death.	Remarks.
159	13	Delicate	19th day	
15	31	Very bad ..	8th day	Diseased kidneys.
121	60	Very stout ...	6th day	
158	60	Good	2nd week	

Pyæmia has hitherto not been much considered as a cause of lithotomy fatality. There can be little doubt that it has prevailed of late years much more extensively than it formerly did. The four cases in the above group were examples of the disease in its typical form. The first we have already published in full detail; in it purulent depôts were found in several organs. In the second, a man in miserably ill health, worn out with suffering, had lithotomy performed at his own request, and died on the eighth day, having had rigors and other symptoms of pyæmia. The kidneys were found disorganised, there were small deposits in the apices of the lungs (tubercular ?) and in one knee-joint was a collection of pus amounting to four ounces. The third is a very remarkable case, on account of the early period at which the disease set in. The patient, a man of sixty, appeared in good health, but was very stout. The stone was a large one, but was got away without unusual difficulty. A severe rigor occurred within twenty-four hours of the operation, and pain was complained of in one shoulder-joint. Profuse sweatings, and an intermittent pulse soon followed, and he rapidly sank. At the autopsy both knees and both shoulder-joints contained pus; but the lungs, liver, and other internal viscera were healthy. In the fourth case purulent depôts had formed in the cellular tissue of both arms.

It is very possible that in certain other of the cases a dyscrasia closely allied to the pyæmic was connected with the cause of death. In those, for instance, in which acute disorganising inflammation of the kidneys was found, such a suspicion might be fairly entertained. We have preferred, however, only to include under this heading those cases in which the nature of the disease was well marked. As being the direct cause of death in one-tenth of the fatal cases, it is evident that pyæmia must henceforth assume an important position in the rôle of dangers to be encountered in lithotomy practice.

It will be for additional observation to confirm or alter the impression; but we cannot help thinking that the occurrence of external suppurations, either in joints or cellular tissue, is more common when pyæmia follows operations on the bladder or urethra than when it is consequent on those in other parts. Also that deposits in the internal viscera are proportionately less frequent after the former. This impression is formed on the observation of several instances of fatal pyæmia after the external division of stricture, and after lithotomy, &c.

Pelvic Suppuration as a Cause of Death.—(Four cases.)

No.	Age.	State of Health.	Date of Death.	Remarks.
72	50	Fair	1 month.	Extensive suppuration between bladder and rectum.
117	61	Good	10 days	The stone weighed nearly four ounces.
109	64	,, ...	19th day	Inflammation of bladder and abscess behind it
94	68	Very bad ..	5th day	Paralytic; stone small, but lodged in a pouch.

Of the above 4, two cases (94 and 109) are given also under the head of Renal disease, as in both there was extensive disease of the kidneys, as well as abscesses about the bladder.

Shock of the Operation.—(Two Cases.)

In seven cases the patients died within forty-eight hours of the operation. In five out of these there were other ostensible lesions to which death was referred, so that in two only did it appear attributable to mere shock. In one of the latter the patient was a delicate boy, aged ; the operator had withdrawn the staff before it had entered the bladder, and much difficulty had been encountered in completing the operation. There was no doubt but that in addition to the prolonged operation much more than the ordinary amount of injury was inflicted on the parts. The child sank and died on the third day. In the second case, a heavy corpulent man, aged sixty-two, sank into low delirium soon after the operation, and so continued until the third day, when death occurred.

Other Causes of Death.—(Eight Cases.)

The eight cases which yet remain to be accounted for may be classed as follow:—In two men, one aged fifty-six and the other seventy, both in fair health, death appeared to result from extravasation of urine into the cellular tissue of the scrotum and perineum. In both the scrotum sloughed most extensively. In one of these death took place on the seventh, and in the other on the fourteenth day. It is not a little remarkable, the extravasation of urine, to which formerly a very large proportion of deaths after lithotomy used to be ascribed, should have come to be regarded as one of the least frequent sources of danger. In one other case (No. 90) a child, aged   , previously in good health, died in convulsions, thirty-six hours after the operation. In another (No. 77) a child, of two years old, also in good health, sank within forty hours from acute bronchitis. This case was one of so much interest that we recorded it at the time in full detail. In one (No. 63) we ought perhaps scarcely to class the case as a lithotomy fatality, since the child had so far recovered, as to have been discharged from the hospital. It was that of a very delicate child, aged three, admitted with a perineal abscess and fistula, communicating with the urethra. After the operation all did well, but at the time of discharge the wound was not quite healed. The child was re-admitted in a much exhausted state, and finally sank six weeks after the operation. In two cases death was directly referable to wound of the fundus of the bladder by the operator's knife. Both the patients in whom this accident happened were adults. In each extravasation of urine into the peritoneum of course followed. The last remaining case is one in which, in an elderly man with enlarged prostate, not only was the stone extracted, but the projecting middle-lobe of the prostate was cut away. Death from inflammation of the bladder followed three weeks afterwards.—*Med. Times and Gazette, Jan.* 8, 1859, *p.* 32.

101.—*Statistics of Lithotomy.* By Dr. James A. Lawrie, Professor of Surgery in the University of Glasgow, and Dr. George Buchanan, one of Surgeons to the Glasgow Royal Infiirmary.—[The following general results are obtained from an interesting seriesof tabulated cases, which have occurred in the Glasgow Royal Infirmary.]

Lithotomy has been performed in the male in 159 cases, with 23 deaths. Proportion of deaths to cases, 1 in 6·913.

The ages of the patients and results are as follows:—

At and under 5 years,......... ..	50 cases	.... 3 deaths
From 5 to 10 years, ...	34 –	.... 2 –
From 10 to 15 years, ...	11 –	.... 1 –
In all under 15 years, ...	95 –	6 –

Proportion of deaths to cases under 15 years, 1 in 15-83.

From 15 to 20 years, ...	14 cases	5 deaths
From 20 to 30 years, ...	15 –	5 –
From 30 to 50 years, ...	14 –	0 –
Above 50 years, ...	14 –	3 –
In all above 15 years, ...	57 –	13 –

Proportion of deaths to cases above 15 years, 1 in 4·384

The ordinary lateral operation, in one or other of its modifications, has been performed 107 times, with 18 deaths. The operation with a rectangular staff, devised by Dr. A. Buchanan, has been performed 52 times, with 5 deaths. The following are the particulars of the cases which were treated by the two methods respectively :—

	The ordinary lateral operation occasionally modified to suit particular cases, as noted in the table.		*Dr. A. Buchanan's Rectangular Method.*	
At and under 5 years...	28 cases	... 1 death	22 cases	... 2 deaths
From 5 to 10 years, ...	24 –	... 1 –	10 –	... 1 –
From 10 to 15 years, ...	7 –	... 1 –	4 –	... 0 –
In all under 15 years,	59 –	... 3 –	36 –	... 3 –
Proportion of deaths to cases, 1 in 19·6.			1 in 12.	
From 15 to 20 years,...	9 cases	... 4 deaths	5 cases	... 1 death
From 20 to 30 years,...	12 –	... 4 –	3 –	... 1 –
From 30 to 50 years,...	9 –	... 0 –	5 –	... 0 –
Above 50 years,.........	11 –	... 3 –	3 –	... 0 –
In all above 15 years,	41 –	11 –	16 –	2 –

Proportion of deaths to cases above 15 years, 1 in 3·727; and by the rectangular method, 1 in 8.

In 7 additional cases of the lateral, the ages are omitted from the record; of these 4 died.

Proportion of deaths to total cases, lateral, 1 in 5·94; rectangular, 1 in 10·4.

It must be remarked that the above synoptical table does not give a true estimate of the relative success of the lateral and rectangular methods of operating. The column of "lateral operations" ought rather to be entitled "operations other than rectangular;" for a glance at the statistical tables will show that it includes various methods, even the old operation with the gorget.—*Glasgow Med Journal, April* 1859, *p.* 40.

102.—ON LITHOTOMY IN CHILDREN.

By John Adams, Esq., Surgeon to the London Hospital.

I propose to make some allusion to the difficulties attending the operation of lithotomy in children, for it is in children that failures are apt to occur; and this brings me to a brief description of the *modus operandi*.

The bladder, after being emptied, is to be carefully injected with warm water so as to distend it fairly and fully, and a staff is to be introduced. I cannot help attaching the highest importance to the selection of a staff, for I am quite sure that a want of attention to this often leads to irremediable error, and hence an operation, simple in itself, becomes altogether impracticable. I show you instruments of various curves, and it is easy to see how a staff with a short curve may, in one of the steps of the operation, be withdrawn from the bladder, and the surgeon, ignorant of this fact, thrusts his knife forwards, and fails to enter the bladder. This I maintain to be a very common cause of failure. Hence the inventive genius of some modern surgeons has been wracked to find out a staff which shall combine two important elements in cutting for stone—namely, first that it shall duly reach the bladder, and at the same time shall so present itself to the perineum that no one can possibly miss it. I allude to the staff of enormous curve and the rectangular staff—both instruments dangerous in the extreme; they always remind me of books you see advertised, in which the road to learn a language is "made easy to the meanest capacity." I would say, avoid such things; rely on your anatomical knowledge and on fixed principles, which are sufficiently simple.

When the staff is passed well into the bladder, your assistant takes it, and holds it according to your direction. Attend to what I am now saying. Do not direct your assistant to push the convexity of the staff forcibly towards the perineum; and above all things, do not tell him to present it to the left side,—both egregious errors. No! direct him to keep it in the mesial line, which is most natural, and tell him to hook it well under the pubis, so that in your incision you may not trespass on the rectum. It is a great error to push the convexity of the staff towards the perineum, for although you may by this means easily enter the groove, you cut the urethra at the bulb, and are consequently a very long way from the bladder itself,—a great error in cutting for stone. I think the management of the staff one of the most important points of the operation, and such is the opinion of Mr. Coulson—a very experienced lithotomist, who told me that if he had to begin his operations *de novo*, he would take the whole management of the staff in his own left hand, whilst he cut with his right.

Your incision is now to be made with the view of reaching the membranous part of the urethra; in fact, so as to open the urethra as close as possible to the bladder. A pointed scalpel is to be pushed well and deeply into the ischio-rectal fossa, and it often happens that in one incision you enter the groove of the staff, having laid bare the membranous part of the urethra. You may thrust boldly into the ischio-rectal fossa, for there is nothing in your way likely to be damaged. And this is far better than groping your way by a succession of small mincing incisions. If you please, you may finish the operation with the same scalpel; but I prefer the employment of the beaked knife for dividing the neck of the bladder. Be sure that you have opened well the urethra, and that your instrument is in the groove of the staff, otherwise all your efforts may fail in that important step of the operation—the opening of the neck of the bladder. Taking the staff in your left hand, and pressing your knife firmly into the groove, you depress the handle of the staff and advance its point, and in this manner your knife, following the staff, enters the bladder. And how do you know that your knife is in the bladder? By the escape of the urine, you will say. Yes, but this will escape often when the membranous part of the urethra is opened. You must remember that in a child the bladder is a long way off, much longer than you might imagine; and you may suppose that you have reached its neck when you are not near it. Now, as this is of all things the most important, I would advise you to carry on your left forefinger along the back of your knife, and never withdraw the staff until you can satisfy yourself by the sense of vacuity you experience, and possibly by the feeling of the stone itself, that your finger is fairly and freely in the bladder. You may then direct your assistant to withdraw the staff, and pass the forceps along your forefinger and extract the calculus. Of all things I would say that, if you are not positive that your left forefinger is in the bladder, you are not justified in introducing the forceps.

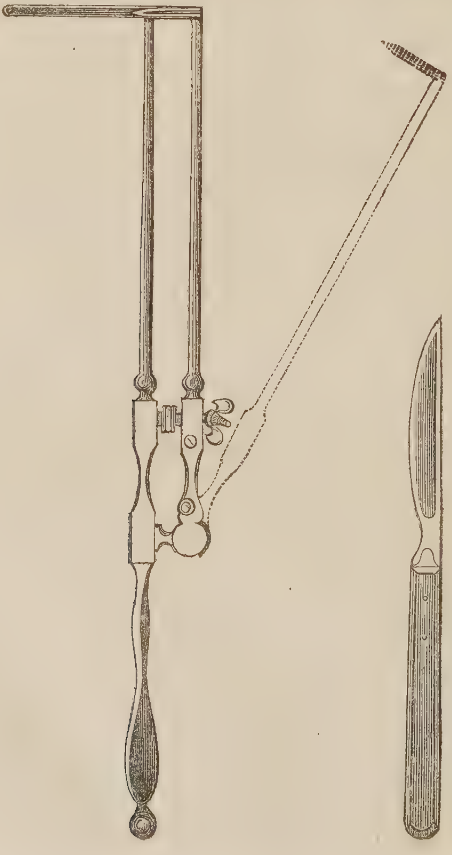
Of course my observations are not applicable wholly to the operation with the straight staff and scalpel; nevertheless, the principles are the same, and I may sum them up in a few words. First, let the bladder be fairly distended with water; secondly, let your staff be sufficiently long at the end, so as to ensure its constancy in the bladder during that part of the operation in which this instrument is required; thirdly, direct your assistant to hold it well up under the arch of the pubis, so that you run no risk of wounding the rectum; fourthly, sink your knife fully into the ischio-rectal fossa, that by your first incision you may lay bare the membranous portion of the urethra; fifthly, be quite sure that you have freely opened the urethra in the membranous portion, and that the beak of your knife is well in the groove of the staff; sixthly, in dividing the neck of the bladder be quite sure that you have fairly entered its cavity; seventhly, never withdraw the staff, or attempt to pass your forceps until you are satisfied that your left forefinger is fully in the bladder; and this you will know by a rush of urine, a sensation of vacuity, and possibly by feeling the stone itself. There are many other points, as the limitation of your incision into the neck of the bladder, &c., but to these I need only make allusion, as they are well understood. But if you attend to what I have said, I feel assured that you will finish the operation, if not quickly, or, as it is called, brilliantly, at any rate with safety.—*Lancet, Jan.* 22, 1859, *p.* 77.

103.—LITHOTOMY SIMPLIFIED.

By Dr. ROBERT T. CORBETT, one of the Surgeons to the Glasgow Royal Infirmary, and Lecturer on Clinical Surgery.

Lithotomy, as is well known, has engaged the attention and earnest reflection of surgeons from an early period. It is still looked upon, almost everywhere, as an operation requiring, on the part of the surgeon for its proper performance, considerable fortitude, steadiness of hand, and practice, both upon the dead and the living. I shall not tire the reader by even naming the various instruments that have been used, and the methods of operating that have been practised by the many great surgeons who have in successive ages adorned the profession. Suffice it to say, that the lateral operation, as it is called, has now been for a considerable time in general use, and was practised in Glasgow and the West of Scotland till the year 1847, when, upon the 9th of August of that year, Dr. Andrew Buchanan of this city first performed successfully "the mesial operation," using a staff of his own invention, which he has named "rectangular." It would be doing great injustice to my esteemed colleague, were I to give a detailed account of the staff used by him, and of his operation, as this has already been done so ably by himself, in his contribution to the 'Monthly Journal of Medical Science' for February 1848, to which communication I direct attention, as in it the lateral and mesial operations are contrasted, and the anatomical relation of the parts cut in the two operations scientifically explained. It will be necessary, however, in describing the instrument which I now bring before the profession, to make some remarks, which, although applicable to the rectangular, are equally necessary to be understood for the proper performance of the operation by the instrument to which I allude. I may mention that all the surgeons who held office in the Glasgow Royal Infirmary during the last eleven months, have invariably used the rectangular staff, and with great success. The operation has now been performed in Glasgow between fifty and sixty times by means of that instrument, and the average mortality has been rather less than one in thirteen. Judging from the rapidity with which the rectangular staff has come into use in this city, I scarcely think I use the words of prophecy when I say that in a few years the operation by the lateral method will be spoken of as among the things that were.

In cutting for the stone, our objects should be, to open the bladder in the safest manner, by the shortest passage, and by the easiest method. In short, *tuto*, *cito*, *jucunde*, if the last term can be used in surgery. It was to accomplish such ends, that my mind has been for the last two years directed to the subject of lithotomy. I have performed this operation five times with Dr. Buchanan's staff, at the ages of 3, 14, 21, 40, 55, and always successfully. Still from what I experienced myself and saw in others, although I considered Dr. Buchanan's staff and method of operating a long stride indeed in the right direction, I did not consider the instrument perfect, and I have endeavoured to make it so. How far I have succeeded my professional brethren will judge for themselves; at the same time, I am quite aware that, however fortunate I may have been in my attempts to simplify the operation, time must elapse till the instrument becomes generally known before it can be extensively used, and we can have the result of numerous cases. To render the description as intelligible as possible, I subjoin a wood-cut. Still I feel conscious that an



inspection of the instrument itself, and a trial of it upon the dead body, would do far more than any written notice to break down the prejudice which is likely to arise against it—as this feeling generally opposes everything that is new.

Description of the Instrument.—The instrument may be said to be composed of two staffs:—the inner is for introduction to the bladder, and has a handle by which it is kept steady when wished; the other is for application outside, and is attached to the first by a catch joint, which is fixed to a projection under and behind the handle, and is steadied by a quadrant-looking projection which passes through it. As this projection has a screw upon its upper and under surfaces it permits the action of a nut-screw.

When the instrument is secured *in situ* for the operation, the perpendicular portions of the staffs are parallel to each other; and the short horizontal limb of the outer, which is pointed like a pen and grooved upon the left side, enters a similar groove upon the same side of the horizontal part of the inner staff, by means of which a direct groove or tract is opened into the bladder. The staffs of the instrument can be detached and united with the greatest ease and quickness.

To make myself fully understood, however, I shall suppose that a patient under the use of chloroform has been placed upon the table for operation. I first introduce that part of the instrument which is the larger of the two pieces of which it is composed, and which is in reality a rectangular staff; having struck the instrument against the stone to be satisfied that there is one, I then get the patient's feet bound to the thighs—which is much safer than binding them to the hands, as this latter practice draws the patient's body too much together and materially lessens his capacity for breathing, thereby increasing the danger when chloroform is used. The nates now being brought to the edge of the table, the upper part of the pelvis elevated by a pillow placed below it, and the knees well separated, I take the handle of the staff in my right hand, introduce the forefinger of my left into the rectum, and feel for the horizontal part of the instrument; being satisfied that I feel the prostate between my finger and the portion of the staff just named: I then move the instrument slightly backward and forward until the angle rests immediately in front of the anus, of which position I am assured by my left thumb resting upon it. The handle at this moment being perpendicular, I now desire my assistant to hold it steady, and I attach the outer portion of the instrument, which is effected in a moment by means of the spring-catch. The quadrant-looking projection from the first staff passes through the outer one; and this contrivance, with the joint named being what is called a double-joint, completely does away with lateral motion. The outer portion is then pressed down with the right hand till its point touches the skin immediately in front of the anus, and in the middle line. The nut is now fitted on to the quadrant projection, when a single turn of the screw is sufficient to establish a line of communication with the bladder. The knife used with this instrument being held at a right angle to the outer staff, is then run along the groove into the bladder till its point is stopped, and a curved incision of an inch and a quarter, or inch and half in length, is made to the left of the rectum, as the knife is being withdrawn. The operator then introduces the forefinger of his left hand into the bladder and dilates the opening in the prostate if he thinks fit. The staffs having been withdrawn, the stone is removed by any instrument the operator may deem most suitable for the purpose.

The knife I use is exactly three-eighths of an inch broad, perfectly straight in the back, which is ground to a blunt edge till half an inch from its point where it is cutting, being fitted to pierce as well as cut. The blade from its point to its shoulder is equal to the length of the two grooves when the instrument is screwed up; this shows how far the knife should enter; but it is not essential that the blade should be of any particular length, as the knife is thrust home until its point is stopped by the closed extremity of the groove. In front of the shoulder of the blade there is a depression which is rounded off, in which the forefinger rests while the knife is being used. I would recommend the finger in the rectum to be applied to the horizontal portion of the staff while the knife is being thrust into the bladder, as it is unnecessary to press the rectum away from the edges of the knife, this gut never having been known to be cut by this method of operating.

The points in which I think this instrument possesses advantages over Dr. Buchanan's are these:

1st. That you transfix the very commencement of the prostate, where the membranous portion of the urethra ends, by which you render it impossible for the angle of the staff to shift from the position in which it has been placed, thereby rendering yourself independent afterwards of your assistant; and it follows from the instrument being fixed in the place of election, that you can with far greater certainty cut the gland in the place wanted, and with the greatest exactness to any extent desired.

2nd. A deep groove leading from the outside into the bladder, that organ can be cut into with the greatest confidence, ease, and certainty, whereas with the rectangular staff, in fat subjects, or when from any cause the perineum is deep, there is sometimes great difficulty in finding the groove, and even in young subjects I have seen much time lost, and worse than that, before the knife was fairly introduced.

In using the rectangular staff, when an operator gets his knife entered at once into the groove, I am almost disposed to think, that either chance or good luck has had something to do with the matter; and if I should ever operate again by this staff in an adult, I will most certainly make a preliminary incision round the left side of the anus, find the angle of the staff, and then enter the knife in the groove; but I trust the instrument I have now attempted to explain will obviate this necessity.

I have operated frequently upon the dead body by means of this instrument, but have used it only once upon the living; this was three days ago, on the 9th of the current month, at nine o'clock a.m. in the operating theatre of the Glasgow Royal Infirmary, in presence of many Practitioners and Students. The subject of this operation was a lad, aged 17, who had been afflicted with symptoms of calculus from his infancy. The sufferings he experienced from that early period had affected his general health to a considerable extent, and he looked like a boy of 14. Slight exertion produced great pain, and there was considerable mucous deposit from his urine.

The operation was performed with the greatest ease, so far as the instrument and the use of the knife were concerned, and a stone measuring 2⅛ inches in length by 1¾ in breadth, and weighing two ounces three drachms and a-half, was extracted by means of the forceps, which caught it at once. As the calculus was, however, very large, and the forceps used relatively small, some exertion was necessary before it could be brought through the opening in the bladder, although the prostate was undoubtedly cut and dilated previously as far as seemed safe. The boy lost little blood from the operation, the urine afterwards came freely away by the wound, the edges of which continued soft and free from all inflammatory swelling. He suffered as little pain as is generally experienced after this operation, but his pulse was weak, and he could not be prevailed upon to take nourishment; and he continued in this state till his death, which took place forty-four hours after the operation, the patient having had two healthy alvine evacuations about two hours before his decease. Permission to inspect the body was not granted, although urgently requested; but a young gentleman who was officiating *pro tempore* as my clerk, was allowed to make a small cut into the hypogastric region, when he saw that the prostate had been cut as nicely as possible, but the bladder was very much thickened, the result, no doubt, of chronic inflammatory action; there was no ecchymosis of its mucous surface, but the serous covering was reddened, and there was some effusion into the peritoneal cavity; but as a thorough inspection was not made, it remains doubtful what was the immediate cause of death. If I ventured upon an opinion, I would say, that sub-acute peritonitis, proceeding from a diseased bladder, was the cause. It may be remarked by some, that the principle of this operation is nothing new, in other words, that means of establishing a route for cutting-instruments into the bladder have been tried by several Surgeons in times past—this I have found out, since Mr. W. B, Hilliard, of Glasgow, made this instrument for me, now two years ago; but at the present moment I am only acquainted with two instruments so constructed; viz., those which bear the names of Sir James Earl and M. Guerin.

Without entering into any detailed account of these instruments, I content myself with remarking, that I believe them to be very unsafe (as will be apparent to every one who examines them); and I cannot find out that they have ever been used upon the living.—*Med. Times and Gazette, Dec.* 11, 1858, *p.* 598.

104.—SYME'S OPERATION IN A CASE OF STRICTURE OF THE URETHRA.

(Under the care of HENRY LEE, Esq., Surgeon to the Lock Hospital.)

[The case was that of a man aged forty-one, who had suffered from stricture for eighteen years. There was great difficulty and pain in passing urine, and sometimes complete retention.]

After his admission, a very small gum-elastic catheter was passed, but with much difficulty, through the stricture, which was situated immediately behind the scrotum. Behind this, the passage appeared quite free. Upon subsequent occasions no instrument could be passed through the stricture, which could be felt in the perineum, forming a dense, hard, cartilaginous knot.

On the 11th of January, no progress having been made by means of bougies, the patient was placed on the operating-table. After the administration of chloroform, various instruments were tried without effect; but at length a very small catheter, with a groove at its extremity, (made according to Mr. Fergusson's suggestion,) was introduced through the stricture. An incision was now made through the skin, in the middle line of the perineum, from before backwards. The finger introduced into this incision could feel the groove in the extremity of the catheter. The knife was then turned round, and guided by the finger-nail, was introduced into the groove. The stricture was now divided from behind forwards, the peculiar gristly nature of the tissues being evidenced by the grating sound as the knife passed through them. Upon the withdrawal of the grooved catheter, a large gum-elastic catheter was introduced into the bladder, and fixed in its situation. No evil consequences followed the operation; the catheter was removed on the third day, and the patient was allowed to get up on the 20th of January, nine days after the operation.

Feb. 8th. A large catheter can be introduced with the greatest ease. No urine has passed by the wound for three days.

15th. The patient states he never felt better. He left the hospital on the 17th.

Mr. Lee remarked, that the operation in question had been as strenuously advocated by some as it had been violently opposed by others. The success which had attended it also appeared to have varied very considerably in different hands. This, Mr. Lee considered was to be accounted for in great measure by the kind of stricture for which the operation had been undertaken by different surgeons, and consequently, by the different nature of the operation itself. An incision through the bulb of the urethra Mr. Lee regarded as a very safe operation; an incision through the anterior part of the membranous portion, involving, as it necessarily does, a division of a portion of the deep perineal fascia, he looked upon as a very unsafe proceeding. It was probably owing, in great measure, to the want of sufficient attention to these two essentially-different operations that such different results had been obtained. In performing the operation, as in the case above described, a division of the deep perineal fascia was impossible; but then it necessarily followed, that the operation so performed was adapted to cases such as the preceding, where the stricture was situated in the bulb, and not in the membranous portion of the urethra.

Mr. Lee concluded that, under ordinary circumstances, the operation of perineal section was adapted only to cases to stricture confined to the bulb of the urethra, and to cases of perineal fistulæ, where the parts were often so condensed by adhesive inflammation that incisions might be made with impunity in any part of their course. He referred to a case of the latter description, which had come under his care in the hospital eighteen months ago. The patient had repeatedly had the urethra dilated; but the fistula could never be cured until the operation of perineal section was performed. The wound and sinus both healed in a few days, and the patient was seen quite well, and able to pass a full stream of urine without the use of instruments, twelve months afterwards.—*Lancet, Feb.* 26, 1859, *p.* 214.

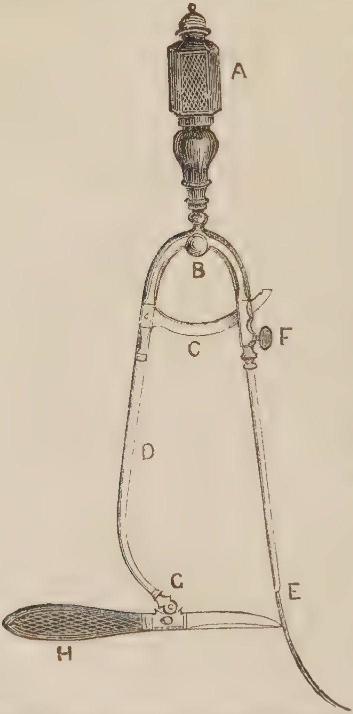
105.—URETHROTOME FOR PERINEAL SECTION.

By C. F. Maunder, Esq., Demonstrator of Anatomy at Guy's Hospital.

I presume it is allowed by most surgeons, that there are certain cases of stricture of the male urethra which can only be cured either by "external incision or perineal section."

Now, this section of the diseased parts must occasionally be made at hazard without a director, while there are cases in which, although a catheter may be passed through the stricture into the bladder, the operation is deemed to be necessary and may be performed with the greatest safety as regards the parts interested in the operation, provided that the director can be readily felt through the soft parts of the perineum.

But it sometimes happens that the soft parts are so thickened and indurated that the guide cannot be felt through them, and although the surgeon may divide the tissues with the greatest care in order to arrive at the director, it is very possible that he may, in consequence of the altered condition of the soft parts, miss the staff, and continuing his incision on one or the other side of it, get behind the director and so fail in the accomplishment of the operation. In order to obviate the possibility of such an accident, and insure the finding of the guide with ease, I beg to introduce to the notice of your readers, a sketch of the Urethrotome which I have devised for that purpose.



A represents the handle of the instrument, which, when in use, the surgeon should hold steadily with his left hand. B marks the position of a circular joint which allows the arm D to be moved forwards and backwards. C is an arc which insures the moving of the arm D parallel to the arm E. E is a Syme's staff which may be either removed or fixed at pleasure by the finger-screw F. G marks the position of a circular joint which allows the double-edged scalpel H to be moved in a direction either upwards or downwards. The scalpel H is attached to the circular joint by a finger-screw.

The sketch represents the instrument in action, with the staff E in the stricture, and the scalpel which has been made to penetrate the soft parts of the perineum, with its point in the groove of the staff. To complete the operation, the handle of the knife must be depressed when the blade rises along the groove and divides the tissues until its point is arrested by the thick portion of the staff.

The stricture is now divided, and on withdrawing the scalpel, the handle of the same should be elevated so as to cause the blade to enlarge the wound in the perineum and so ensure the ready escape of urine. A Syme's staff is preferable to an ordinary grooved director, because the thicker portion having been introduced down to the stricture, and the knife having cut the tissues along the groove, up to the thicker portion of the staff, divides the stricture with certainty, and nothing more.—*Med. Times and Gazette, Oct.* 30, 1858 *p.* 457.

106.—*To Remove a Calculus from the Urethra.* By SAMUEL SMITH, Esq., Leeds.—[Mr. Smith observes that there are various little gimcrack French instruments for the removal of calculi from the urethra—but he has "never used them once, and never intends to do so."]

Get the scoop of a small silver director passed into the urethra; and, when you once feel the stone, manœuvre to get the scoop beyond it; you then have it safe; alter the angle of the instrument, and it readily comes forward. Every stone I have removed from the urethra has been by this instrument. It is a far superior plan to the use of forceps of any kind. It is like what is seen in removing a pea from the ear of a child: if you attempt to do it with forceps, you will do what was done with the bougie; instead of poking it out, you will poke it in. But if you get a little scoop beyond it, you will soon have it out.—*British Med. Journal, Jan.* 15, 1859, *p.* 46.

107.—NEW TREATMENT OF HYDROCELE.

By Dr. JAMES YOUNG, Edinburgh.

[Hydrocele is much more amenable to treatment by the method here described than by the ordinary operation of injecting tincture of iodine.]

In the first case we can guard against excessive action by the withdrawal of the seton at any time, according to the susceptibility of the patient; while in the latter, the action consequent on the injection of the iodine, is generally, if not always, very severe; and, indeed, deep suppuration sometimes follows that treatment.

It may be argued that a seton is generally used as a counter-irritant to excite suppuration, but in the treatment of hydrocele the great recommendation of the seton is, that it can be removed before the suppurative stage commences. In addition, the cure is very tardy; I have seen four and six weeks elapse ere the swelling abated after the injection of iodine; while under the new operation eight days, or less, will suffice for a complete cure; and it is on this ground, principally, that my argument is based in favour of the new method of treatment.

Case 1.—[Last summer, while in bed, a middle-aged man received a slight blow upon the testis; not much pain was caused at the time, but the scrotum commenced gradually to enlarge till in October, four months after the accident, it measured 5 or 6 inches in depth.]

On October 1, the patient placed himself under my care, when, after examination, I recommended an operation which was eventually performed on the 26th of that month by the insertion of an iron wire seton.

This new treatment was adopted in consequence of Professor Simpson having become acquainted with the case.

We resolved to give this new method of curing hydrocele a fair trial, and accordingly the operation was performed by passing a large curved needle through the scrotum and tunica vaginalis, for about two inches; five fine iron wires were passed carefully through the eye of the needle, and then it was withdrawn, leaving ten threads as a metallic seton, which were allowed to remain, as in the case of a common seton. The fluid began to flow immediately, and continued to ooze out for some time after, soaking several towels, until the whole escaped. The patient complained of very little pain either during the operation or after it.

On October 27, the inflammation began (a little fluid continued to trickle), and on the 28th the swelling was considerable.

As the action was sufficiently powerful on the 29th, the seton was removed, with little pain to the patient. We observed, on removing the wire, a considerable quantity of lymph on it, the result of the inflammation. The swelling began to fall every day after the removal of the seton, and the patient rose on November 1.

At the present date, February 18, 1859, I may state, that he continues quite well, without the least return of the hydrocele, the scrotum having regained its usual healthy size.

This, so far as I am aware, is the first operation of the kind that has been performed in Edinburgh, and reflects the greatest credit on Professor Simpson, who proposed the operation. The complete success which attended this case, encouraged me to make further inquiries, and I have since operated on two other patients with perfect success; but I will merely mention one more here, as the operation is conducted on the same principles in every case.

Case 2.—R. W. aged 17, by trade a blacksmith, states, that about two years ago, he observed his testicle begin to swell, and continue to enlarge from below upwards.

In August, 1858, the scrotum was about the size of two large turkey eggs. At that time he had been treated with blisters, &c., but without any permanent benefit; and at the beginning of this year he was advised to come to Edinburgh, and undergo some operation to obtain relief. I saw him for the first time on January 5, 1859, and proposed this new operation to him.

In this case the patient was not aware of having received any external injury,

On January 6 the operation was performed, along with Professor Simpson, in a similar way as described in the previous case, except that only four wires were used instead of five as before.

The fluid escaped rapidly and in large quantity. The patient complained of very little pain, either during the operation, or the first twenty-four hours. On January 7, the scrotum was much reduced in size than before the operation, but on the 8th the inflammatory action commenced, and on the 9th the scrotum was considerably larger, and as the patient was complaining of great pain, we thought it advisable to remove the seton. On the 10th and 11th there was a slight discharge of pus from the upper wound, which was treated by the application of a poultice, and the lead and opium lotion. On January 12 the swelling began to fall, and the patient got rapidly well, and was soon able to go home.—*Med. Times and Gazette, Feb.* 26, 1859, *p.* 207.

108.—*Iodine Injections in Hydrocele.*—The great object contemplated by the surgeon in attempting the radical cure of hydrocele is to produce such an amount of irritation or of inflammation as shall cause the opposed surfaces of the tunica vaginalis to adhere, and thus obliterate a cavity which will remain persistent as long as there is a free serous surface to pour out its morbid secretion. The plan of passing silk sutures through the sac of a hydrocele was resorted to some years ago by Mr. Curling, who found that in some cases it succeeded, whilst in others it failed in consequence of the suppuration of the sac. In a recent case under treatment at the London Hospital, he was disposed to try the silver wire; but as it is known to produce so little irritation, he could not see how it should succeed. He, therefore, resorted to an injection of tincture of iodine, which has never but once failed in his hands, and will radically cure forty-nine out of fifty cases. With such a reliable agent as this is proved to be, we think that surgeons ought to be contented, particularly when a cure is obtained with great facility, and comparatively but little suffering to the patient. In the case treated on the 10th February, the testicle was situated in the anterior part of the sac, and the iodine has up to this time been quite successful.

We saw the silver wire tried recently in a case of hydrocele in University College Hospital, under Mr. Erichsen's care. It produced a certain amount of consolidation, but not sufficient to effect the object desired, and the sac refilled. It was tapped on the 23rd March, injected with tincture of iodine, and has turned out a radical cure. The silver wire was merely tried as an experiment.—*Lancet, April* 2, 1859, *p.* 341.

109.—*New Method of Curing Hydrocele.* By Dr. J. Y. Simpson.—Many methods have been proposed of treating hydrocele surgically; and at the present time tapping, and medicated injections into the sac, formed the means generally resorted to. The new method which Dr. Simpson suggested, was founded upon the fact that iron and other metallic wires, when placed in contact with living tissues, did not, as a general law, excite inflammation to a higher stage than that of adhesion, or the effusion of coagulable lymph. Dr. Rothmund, of Munich, performed the radical cure of hernia by exciting adhesive inflammation in the returned hernial sac, passing, for this purpose, and leaving for eight days, a metallic needle traversing the peritoneum;

and had not, it was averred, lost a single patient out of 1000 operated on. If metals in serous sacs created a higher stage of inflammation than the adhesive, such a fortunate result as this would not have been attained. Dr. S. had thought for some time that metallic wires passed through the sac of a hydrocele would act in two ways: first, they would drain off the fluid; and, secondly, they would subsequently, by their presence, form the surest means of exciting the subsequent amount of adhesive inflammation that was required for the cure of the disease. Dr. Young had, in one of his patients, afforded him an opportunity of putting this idea to the test. Dr. S. showed the Society the slender wire or metallic seton which he had used in this case. It was passed through the sac by first traversing the sac from below upwards with a long-handled surgical needle, such as is used in transfixing and tying hemorrhoids, threading the eye of the needle, after it was projected through the scrotum above, with three or four slender iron threads, pulling the needle then backwards through the sac and out, and thus leaving the metallic seton in its place. The liquid drained off in an hour or two; adhesive inflammation set in, and progressed for two days, when it began to subside. The wires were removed on the third day; and the cure had remained apparently quite complete, with the vaginal sac firm and consolidated. Dr. Young had promised to publish the whole case at length. This method of treating hydrocele was, Dr. S. held, much simpler in its performance than tapping and injecting; not by any means so painful to the patients; less likely to produce a suppurative or dangerous amount of inflammation; and, perhaps, experience would show also, betimes, that it was surer and more certain in its results.—*Edinburgh Med. Journal, Dec.* 1858, *p.* 546.

110.—*Varicocele—Vidal's Operation.* By Prof. Erichsen.—This was a case of a young man who was the subject of varicocele, which, although not of great extent, yet caused him considerable inconvenience, and Mr. Erichsen thought that Vidal's operation would be the most effective method of curing him. The operation consists in passing a large needle under the veins, and then, by means of another needle, passing a silver wire between the veins and the integuments—when the two are then twisted together, thus causing pressure upon and consequent obliteration of the veins.—*Medical Circular, Oct.* 20, 1858, *p.* 183.

SYPHILITIC DISEASES.

111.—ON CHANCRE.

By M. Ricord.

[Great importance is to be attached to the experience and teaching of such a man as Ricord. The following is a survey of the more prominent positions held by him in the latest work issued under his authority, " Lecons sur Le Chancre professées par le Docteur Ricord, rédigées et publiées par Alfred Fournier. Paris, 1858."]

There are two kinds of chancre—the simple, soft, or non-infecting, and the hard or infecting. Of these, the simple is most frequently met with. It is purely a local disease, and is neither followed nor accompanied by a constitutional affection. Of its essential characters, the first to be attended to is the condition of the base. This may be free from inflammatory engorgement, and will then present to the finger a softness nearly identical with that of the surrounding textures. But the tissues supporting it may be more or less thickened. The base then gives to the touch the feeling of resistance, which is, however, never more than that offered by a common furuncle. It is a hardness (dureté phlegmoneuse) which is to be distinguished from induration. The latter is only applicable to the infecting chancre. As regards the edges, they are perpendicular, look as if they had been cleanly cut by a punch, the bottom of the sore being irregular, and of a greyish colour.

Simple chancre may be followed, but necessarily nor at a fixed period, by bubo. This is always confined to the first group of glands nearest the sore, and is usually confined to a single gland. It presents, moreover, two varieties. It may occur as a simple sympathetic adenitis capable of resolution, or terminating in suppuration, the pus, however, being non-inoculable; or it may occur as a specific bubo, in fact, a glandular chancre, which inevitably ends in suppuration, and the pus of which produces, by inoculation, the chancrous pustule, and converts the wound consecutive to the opening of the collection into a real chancre.

Simple chancre is the most fertile source of the chancrous virus. It secretes pus having contagious properties in the highest degree. The pus, in fact, inoculates whatever it touches, and retains for an indefinite period the quality of inoculability, so that several soft chancres are not unfrequently met with in the same person. Hence, a simple chancre affords, in the same individual, no immunity against fresh contagion from a chancre of the same species, the reverse obtaining, as a general rule, with chancres of the indurated form. As regards site, simple chancre has never been met with on the face or hairy scalp (région céphalique), and inoculation has failed to produce it on these parts, which is not the case as respects indurated chancre—a fact of the highest importance in the question of diagnosis. Finally, simple chancre is apt to spread, and to assume a phagedænic form, which is seldom the case with the indurated form of sore.

As regards the treatment of this variety of chancre, the main thing to be aimed at is the reduction of the specific ulcer to the condition of a simple ulcer. For this purpose a caustic paste, formed by mixing powdered vegetable charcoal with sulphuric acid, is to be employed.

The paste, when applied to the chancre, now dries up, and forms a kind of black crust, which remains adherent to the tissues—it may be said, incorporates itself with them, and falls off in several days; in general, in the course of the second week. The sore left, after the separation of the paste, is no more than a simple and perfectly harmless ulcer, which is to be dressed with astringent washes. Should there be a tendency to phaged·ena, the patient is to be put on the tartrate of potash and iron, and the sores dressed with a solution of the same. This substance is the born enemy of phagedæna (l'ennemi-né du phagédénisme).

The other variety of chancre opens up the question of constitutional syphilis. As regards the sore itself, it differs, independently altogether of its infecting property, in almost every respect, from the simple chancre. It may be developed on any part of the surface of the body, and on many of the mucous membranes. Its development, however, is, in general, slow, indolent, and insidious, so that patients are not unfrequently met with carrying chancres of whose existence they had been utterly ignorant. To this ignorance or inattention is to be attributed the opinion held by some observers, that constitutional syphilis may occur without the primary chancre. Like simple chancre, the infecting commences directly in ulceration, or as a pustule ending in ulceration, according as the surface to which the poison has been applied is abraded or otherwise. In the latter case, the poison acts as an irritant, which gives rise to an erythema, and this again is followed by a superficial ulceration, through which the poison penetrates so as to inoculate.

As regards the appearances of the infecting ulcer, its surface is smooth, and of a grey colour, the edges not being perpendicular, but rather sloping gradually toward the centre. Its chief characteristic, however, is the induration. This is a hardness *sui generis*, and must be felt to be appreciated. It lies below and around the ulcer, but does not pass into the other tissues. The form which it most frequently assumes is that which has been compared by Bell to that of a split pea placed below the ulcer. It is, however, sometimes annular, and sometimes almost superficial, as if a piece of parchment were placed under the base of the ulcer (induration parcheminée). The cause of this induration is an effusion of plastic lymph. It usually begins on the last days of the first week, and is completed during the second week from the date of coitus. It has never been seen before the third day, and it is very rare for it to appear in the third week. Hence if it is to appear at all, it will do so early, so that it is not to be considered as a termination of chancre, but rather as an initial accident of the constitutional affection. Besides it is more or less marked, according as the part affected is more or less supplied with lympathic vessels, while it is with difficulty detected in certain situations, as the anus, vagina, caruncul myrtiformes, &c., partly because of its assuming in these parts the parchment form, and partly because of its being there always of short duration; in fact, it frequently disappears before cicatrization is complete. This, it is believed, is the foundation of the opinion held by some that the infecting chancre is never indurated in the female subject.

Simple chancre, it has been seen, suppurates profusely, and usually multiplies itself in its neighbourhood by inoculation. Indurated chancre, on the other hand, suppurates little, and is most frequently solitary. It is very rare to see it multiply itself near its own site, and if it does reproduce itself, it can only do so during the first days of its existence. After that it can generate only another variety of chancre. It has, moreover, but a small tendency to assume the phagedænic form, and when this does occur, it does not go to such an extent as that of simple chancre.

As regards the progress and termination of this form of primary ulcer, it is, though indolent, not long in reaching the stage of cicatrization. The ulceration is, in general, outlived by the induration, which may exist for weeks, months, or years. The induration, then, may be considered as a pathognomonic sign. Should this, however, be absent, or have disappeared, the diagnosis will be facilitated by the presence of the bubo, which necessarily accompanies the infecting chancre. This bubo is entirely different from that attending simple chancre. It occurs most frequently coincidently with the induration of the chancre, that is, in the first or second week, and not at an indifferent period, as is the case with the other variety of primary sore. It persists, besides, long after cicatrization of the ulcer; nor is it confined to a single gland, for the glands become affected in clusters (pleiade). The tumours are indolent, moveable below the skin, and on each other, and give to the finger the same feeling as that communicated by the induration of the ulcer. By itself, this bubo never suppurates specifically. The glands, however, may do so from some concomitant cause. In that case, the pus which is secreted can never produce by inoculation the pustule characteristic of chancre.

As has been already noticed, the induration of a chancre is the beginning of a constitutional affection—of a diathesis. This, when uninfluenced by treatment, manifests itself within the first six months by secondary symptoms, which are followed at a more remote period by tertiaries, the former affecting the superficial, and the latter, the deep tissues. It is only during the primary stage that the virus is inoculable, secondaries being generally communicable by hereditary transmission. The hereditary influence, however, becomes, in the course of time, less and less powerful, and in the tertiary period, gradually dies away, and becomes, as Lugol believed, a predisposing cause of scrofula. At the same time, it must be remembered, that the natural course of the diathesis may be modified by certain conditions of age, sex, &c., so that the appearance of the constitutional accidents may be accelerated or retarded. Generally speaking, treatment by mercury delays the appearance of secondaries, but, what is curious, may have no effect in preventing tertiaries, after the development of which, should the treatment be suspended, secondaries will, after a certain time, manifest themselves. In this way the natural order of the phenomena is reversed.

It has been seen that the pus of simple chancre is inoculable to any extent, and is sure to produce on the same subject a chancre of like character. As regards, however, the indurated chancre, the case is different. A diathesis being formed, the subject of it is preserved from a second infection, just as small-pox or scarlatina, when once passed, prevents, with very few exceptions, the future operation of either of these poisons on the same person. It is true that, as respects these diseases, exceptional cases are now and again met with. With syphilis, however, clinical experience shows that the general law is absolute (les diathèses ne se doublent pas.) What, then, does the inoculation of the pus from an indurated chancre produce on those who have already presented unequivocal symptoms of constitutional syphilis? Generally speaking, there is no other result than a slight inflammation, which may sometimes end in the formation of false pustules which speedily abort; but, in some cases, a real chancre may be developed. This, however, invariably presents itself under the aspect of a primary ulcer, with a soft base; an ulcer entirely analogous to the simple chancre. In its progress, its base does not become indurated, nor do the glands connected with it take on the enlargement and hardness mentioned above. To this variety of ulcer M. Clerc proposes the term chancroïde, the result being perfectly analogous to that produced by variolous or vaccine matter on persons who have been already subjected to either of these morbific influences.

But still further, as regards the question of contagion. The pus of a simple chancre can produce in a healthy individual nothing but a simple chancre. That of an indurated chancre, in like manner, can produce only an indurated ulcer. The pus, however, of the soft ulcer, developed on a subject having already had constitutional syphilis, may, as recent observations have shown, give rise either to a simple chancre or to one of the indurated form. It follows, therefore, that a syphilitic subject contracting a new chancre, may still transmit syphilis. It is exceedingly probable, moreover, that this is determined by the origin of the chancroïde. If that be an indurated sore, the infecting character is preserved; if a soft one, the result is only a simple chancre. From this it will be seen that the doctrine of Hunter, which ascribes the differences in the form of the ulcer to differences of constitution, temperament, &c., is not so likely to be true as that which refers them to difference of virus. A little consideration, moreover, will show that the theory of syphilization is "stuff and nonsense."

With reference to treatment, cauterization is imperatively required. This, if practised before the fifth day of infection, will prevent, as experience has shown, the occurrence of constitutional disease, while, if resorted to after induration, it will only destroy a symptom. After cauterization, the local treatment must be conducted just as in the case of simple chancre. In the event of the diathesis being formed, mercury is to be employed. When the diagnosis from induration is unequivocal, the mineral is to be given at the commencement of the diathesis, and not to be withheld, as some practitioners do, till the more ordinary of the secondary symptoms manifest themselves—prevention being surely better than cure. In the event, however, of a doubt, specific medication should be delayed, for as mercury acts by preventing or retarding the manifestation of constitutional symptoms, early treatment in such a condition will deprive both patient and practitioner of an exact knowledge of the state of the case; it being impossible to determine whether the absence of secondary affections during the first months following the appearance of the chancre, is to be held as an indication of complete immunity, or simply as a temporary effect of the treatment, or whether it is to be ascribed to the intervention of the remedy, or to the nature of the primary sore. In such circumstances several months or years may pass, and the diagnosis be just as it was at the beginning. When, however, the disease is left to itself, the diathesis, if it actually exists, will manifest itself within the course of six months, so that if there are no constitutional symptoms by the end of that period, the patient may be assured that he will enjoy an absolute immunity for the future—a matter, it is clear, of the greatest consequence in a social point of view.

Now, though mercury is necessary in syphilis, care must be taken not to push it beyond a slight irritation of the gums. Should salivation, however, occur, it is to be combated by the chlorate of potass, which recent experience has shown to be for this accident, worthy of the title of a specific. At the same time, it must be remembered, mercury is of most efficacy in the initial forms of the constitutional disease, and almost inert, nay, sometimes injurious in the terminal. For the latter, reliance must be had on the iodide of potassium, and as this salt, in the case of tertiaries, is prophylactic as well as curative, just as mercury is prophylactic as well as curative in the case of secondaries, a course of the one should be followed by a course of the other; it being determined, moreover, by clinical observation, that success is most likely to be attained when the mercurial is continued for six, and the iodide for three months.—*Glasgow Med. Journal, April*, 1859, *p*. 83.

112.—ON THE TREATMENT OF PRIMARY SYPHILIS.

By J. L. Milton, Esq.

(Read before the Western Medical Society.)

[Rather than attempt the complete description of so extensive a subject as the treatment of primary syphilis, the author dwells upon the leading indications for treatment. He says:]

I have ventured to adopt a classification similar to that of Mr. H. Lee, and to divide chancres into four classes, according to the predominance of one of the four modes of action, which, however complicated and subdivided, do, as far as my observation extends, embrace the prominent and typical features of all the various kinds of chancre. These are the depositive, suppurating, ulcerating, and sloughing; and though, with the exception of the depositive form or indurated chancre, they are rarely seen in ideal purity—for a little hardness or phagedæna often accompanies suppuration—yet, if the leading feature be borne in mind, it will generally be found that any sore can be referred to one of these four divisions.

Between the indurated and true suppurating chancre, every grade of hardening may be found. The former it is quite unnecessary to describe, even briefly; but it may be remarked that under this name are included here those hardenings, which, without more than a mere fissure or puncture, are isolated and painless. The typical suppurating chancre yields true pus globules at an early period, and may be seen in every variety, the base level, raised, or not much excavated; sometimes brown or port-wine colour, and of great size, so as to approach soft phagedæna in form; occasionally painful (the irritable or inflamed ulcer). Phagedæna comprises here all sores of which rapid or prolonged ulceration is the distinctive mark; the principal forms being a large soft ulcer, extending rapidly and suppurating profusely; and a hard ulcer, with a glassy base and thickened indurated edges, of almost unlimited duration, and possessed of a remarkable tendency to encroach in one direction or other. Finally, we have the sloughing ulcer, commencing mostly with an abrasion, almost every part of which sphacelates, and soon exhibits a covering of greyish or yellowish pultaceous secretion; and on parts furnished with a cuticle, occasionally exhibits a complete black slough—the black phagedæna, or black lion of Portugal.

The course of these sores when carefully studied gives the clue to their treatment. They are mere indurations with perforations, and fissures excepted, heal by suppuration; and it must be the surgeon's aim to induce this process as speedily as he can. Experiment has shown beyond all cavil, that the rapid healing of a sore which has existed more than four days has no more influence in inducing secondary symptoms, than allowing it to run its course unchecked has in arresting them; that there is no such thing as driving the virus into the system; that the use of caustic does not increase the chances of bubo; and, finally, that while we may with caustic destroy many chancres, and with them the danger of secondary syphilis, we cannot effect this by any medicines, while we leave an uncauterized chancre full liberty to develop itself.

Whenever then we see a chancre of whatever kind before it has reached the period of repair, we may at once attack it with caustic, as even if it is impossible to protect the patient any longer against secondary syphilis by the most liberal use of escharotics, we can yet always hasten the removal of the tenacious secretion and promote suppuration. Of all the caustics I do not hesitate to accord the most decided preference to the caustic soda prepared by Mr. Button, of Holborn, who, by the use of silver moulds, has now overcome many of the disadvantages attendant upon the old mode. It is quite as powerful as the Vienna paste, caustic potass, or potass and lime, while it is not nearly so deliquescent; indeed, if kept in muriate of lime, it may be preserved for years. The end of a stick of this salt should be cut with a penknife to a point, so that the deeper points of the sore may be touched. The sore is then cleansed with lint as completely as the surgeon can effect it, and the soda is applied and pressed on the part till the patient begins to feel some pain.

This is generally sudden enough and rather sharp; but it seldom lasts more than a minute or two, and is succeeded by a feeling of great relief, even when considerable discomfort has been set up by the progress of the chancre. The surface acted on by the soda becomes of a deep brown colour ; a free discharge of serum generally follows, and then suppuration sets in, after which the sore in general begins to mend.

Patients who have previously had sores touched with nitrate of silver have noticed a great difference in the rapidity with which they have healed under the use of this caustic; and it has occasionally happened that a patient with two or three chancres, finding the pain occasioned by the soda rather severe, has requested me to use something milder. In every instance of this kind, I have found that the sore treated with the soda healed much more quickly than the others.

When a chancre has existed several days, the caustic may be applied so freely, that the whole surface gives evidence of having felt its action. The pain may be severe, but it is momentary ; and as any measure short of complete cauterization is just as likely to be useless as not, little good can result from any compromise. One effectual application will often save the patient all the irksomeness, confinement, and expense, which attend the long continuance of a primary sore.

In a day or two it will be found that the uppermost layer of skin or slough has been destroyed, the edges of the ulcer are becoming sharp and clean, and by the third or fourth day suppuration, except in very indurated chancres, generally commences. Water-dressing may, from the first, be freely employed. The patient should irrigate the sore three or four times a day, first by means of a rag dipped in warm water, and held at such a height above the sore that the water falls with considerable force upon it ; and subsequently, by means of an irrigating machine, a jug with a very narrow spout, or a bottle full of water, with a notch cut in the cork. The great object is to wash away as much as possible of the tenacious secretion, and this last cannot be effected by mere bathing. Sometimes a little ailing is caused at first by the fall of the water, but it soon ceases. After this a weak solution of sulphate of copper, two to four grains to the ounce, may be used during the day, and the sore may be covered with zinc ointment at night; or, if there is much inflammation, a lotion, consisting of one drachm of solution of diacetate of lead to eight ounces of rose or elder-flower water, may be employed—but generally water dressing is the only application really required. However, prescribing a lotion has this advantage, that the patient will probably use it more regularly than if any simple remedy were recommended.

When the chancre is seated in a part naturally covered by the prepuce, and this membrane is very tight, the part may be well syringed out with water, and then a solution of nitrate of silver, ten grains to an ounce, injected over the chancres. When it is external, a narrow slip of linen may be used to retain the lint in its place; but all further dressings, tending to heat the part, have always appeared to me to act injuriously.

If, after a few days, the base of the ulcer still remain covered with a tenacious secretion, or if the ulcer itself threaten to spread, the soda has not been used freely enough; and it will be as well to apply it again, but very gently, and only to those parts which appear unhealthy. Any further resort to it is rarely requisite in the milder forms of chancre, but the more obstinate cases may demand four or five applications. When the sore has become stationary, and has begun to contract, and there is a pale, delicate, blue cuticle extending inwards from the edge, the caustic is no longer requisite, and zinc ointment may now, if preferred, be substituted for any lotions. If the base shoot above the level of the surrounding skin, an escharotic may be used. The sulphate of copper is, perhaps, as good as anything yet tried.

It is the fashion to condemn the use of ointments in chancre as filthy, barbarous, and apt to irritate the part, if rancid. But there is no necessity that there should be any filth, and no ointment should be used when rancid. Those who have tried Mr. Erasmus Wilson's benzoated zinc ointment—or, what I prefer, an ointment containing ten to twenty grains of the sulphate of zinc to an ounce of lard—will, I think, admit, that it would be a pity if so useful a remedy were abandoned in deference to any prejudice.

If the chancre be very painful, and the patient much prostrated and depressed in spirits, small doses of morphia may be given two or three times a day, in conjunction with ammonia. An eighth or a sixth of a grain of morphia may be combined with a drachm and a half of the solution of the acetate of ammonia.

Having said so much in general terms of the mode of treating sores, it may be as well to append a few remarks relative to each particular form :—

The indurated sore heals under the use of mercury, iodide of potassium, or, what I myself prefer to any general means, dilute nitric acid, in doses of fifteen to twenty drops two or three times a-day, in decoction or tincture of bark. As external remedies have but very little influence over its course, it is generally unnecessary to do more than apply the soda, and subsequently the water-dressing. Painting with tincture of iodine seems to answer very well in removing the induration. Jew's chancre scarcely ever induces suppurating bubo, except in highly strumous subjects; and hence no precautions beyond bathing the swollen inguinal glands with hot water, need be taken to obviate this complication.

It happens only too frequently that this kind of chancre, from the trifling inconvenience it occasions, is not seen till it has ceased to spread, especially when it appears in the form of a small fissure, or perforation, in the centre of a dense induration. The patient occasionally will not believe that it is a chancre, and this fact is possibly one of the most fertile sources of secondary disease. Still, however late the patient may apply, it is, I imagine, better to attack it at once with the soda, as, if we cannot prevent secondary symptoms, we may succeed in modifying them.

I have repeatedly seen sores of this class quickly assume a more healthy action under the use of large doses of tartar emetic, given with the view of dispersing bubo; when they are unusually sluggish, touching them with concentrated tincture of cantharides, or Bullen's blistering solution, will frequently favour granulation.

To remove the induration which remains so long under ordinary circumstances, and which is apt, after disappearing to a great extent, to reappear in a more severe and obstinate form, sometimes attaining an extraordinary magnitude, I have generally used concentrated tincture of iodine, and whenever this failed, resorted to the ointment of the white precipitate of mercury, rubbed in night and morning. In some cases, the effect of the ointment was to induce complete vesication, which was followed by suppuration in the centre of the hard mass. This opened by a minute orifice, and the part rapidly shrank.

Very frequently after indurated, and indeed other kinds of chancre, the patient is surprised to notice an eruption of spots on the penis. Some of them appear as small and bright-red papulæ; if within the prepuce they yield a sero-purulent secretion. At times masses of tenacious yellow secretion are deposited on the surface of the glans penis, apparently at the orifices of the sebaceous ducts, adhering firmly; and when detached, which is only done with difficulty, having small, clean, conical excavations. They may be safely left to themselves, or if treatment is considered necessary, a little simple wash may be applied, if preferred to water-dressing, and a purgative may be given. Except that antacids seem to have some power over them, it may be doubted if they do not disappear almost as fast under the unassisted efforts of nature as with any treatment.

The suppurating chancre cannot be healed too quickly. It has already reached the phase essential to its cure, and the process of granulating is all that requires attending to; but this should be expedited in every possible way, as every day that it remains open only renders the formation of suppurating bubo more certain. Irrigation two or three times daily with warm water, mild aperients, rest, and light diet. are all the remedies really requisite; and a piece of lint, wetted with simple water, and covered with oiled silk, may, with the sulphate of copper lotion spoken of, be safely substituted for all the lotions ever invented. And, indeed, the very variety of these lotions is calculated to raise scepticism as to any real power they can exert over the healing of chancre, as it is only reasonable to suppose that, amidst so many hundreds of formulæ, some few would by right have acquired and maintained an undoubted supremacy.

This is, I believe the form of chancre most generally followed by suppurating bubo, which, as it assumes the character of an inoculable sore, ought to be classed among the primary symptoms of syphilis. As the arrest or development of bubo has not the least influence over the future course of the disease, it behoves the surgeon to endeavour by every means in his power to check or limit the suppuration; and when this result is inevitable, to open the abscess by puncture, and after withdrawing the pus, to close it again, by which means the disfigurement, pain, and ulceration attendant on large openings, are avoided.

The assertion, that arrest of the suppurative inflammation has no tendency to induce secondary syphilis, may seem unwarranted, but I trust it will bear examination. It is quite true, that after a chancre, a bubo will arise, and threaten to suppurate. The formation of pus is checked by the energetic use of proper means, and then, if secondary syphilis ensue, it is always attributed by the patient, and sometimes by the surgeon also, to interference with the course of nature, which would have discharged the virus by a natural outlet. As if to corroborate this view, it is equally certain that suppurating bubo is very rarely followed by secondary syphilis.

But there are reasons for this enigma which, I trust, will still bear out the assertion just made. Suppurating chancre is followed by two kinds of bubo—the inoculable, or that which, at a certain stage, yields a pustule when its pus is properly inserted beneath the cuticle; and the non-inoculable, in which this result does not follow. Now, these are constantly confounded, though as distinct as any two results of syphilis. The inoculable bubo, which accompanies sores with very little thickening or induration, tends to suppuration from the very first. M. Ricord says it almost always suppurates. I believe it not merely tends to, but always ends in suppuration, unless it be checked by the free use of tartar emetic—the only remedy which, in my hands, has ever exerted much control over it. But if this medicine be freely employed, we may, unless my observations have greatly deceived me, in many cases arrest its progress. When our resources fail, or when the patient does not give any heed to his medical attendant's advice, or does not seek assistance till a late period, this kind of bubo always suppurates, bursts, and yields pus, which, however frequently tested, never fails to generate an inoculable pustule till the period of repair sets in. But it is a singular fact, which I have repeatedly verified, that so long as we can close the puncture at once, and thus prevent its edges from ulcerating, the pus does not produce a chancre; for I have frequently healed this form of bubo without its ever becoming inoculable or ulcerating at the edges of the puncture. Here, then, we have everything to gain, and nothing to lose, by arresting the abscess.

In other and rarer instances, this form of chancre is attended by bubo which does not suppurate, or if it suppurates, does not yield inoculable pus. Here, however carefully induced, the formation of an abscess does not in any way arrest secondary symptoms. These are the cases so often triumphantly brought forward to support the doctrine that secondary symptoms may follow suppurating bubo; but the two forms are *ab initio* distinct, and in the latter we have everything in favour of a firm adherence to those means which arrest the progress of the abscess.

It must be admitted that it is somewhat difficult to distinguish between these forms of bubo, except by the results of inoculation. But if they are allowed to run their course unchecked, it will, I think, be found, that in the first class the progress towards suppuration is more rapid and painful. It often ensues in both groins, and one of the abscesses, at all events, is superficial. The second kind of bubo is more sluggish and painless; one side only is often affected—though this is no reliable test—and common antiphlogistic treatment will often check suppuration.

The next variety of chancre is the phagedænic, or that in which the ulcerative process is developed to its utmost. Under this term, it must be remembered, are included all those varieties in which rapid or prolonged ulceration is the predominant character, from the florid, extensive excoriation or ulcer, to the slow, creeping chancre with thickened, hardened edges, which at times appears to defy all the resources of art.

Large florid excoriations or ulcers, unattended by any marked thickening of the edges, are for the most part promptly checked by the use of steel; and, indeed, I am not quite sure that any remedy is so useful in the other forms of phagedæna as enema, or in all forms of chancre except the indurated. Provided it be given in such a manner as to make a speedy impression upon the system, I should imagine it is a matter of perfect indifference what form is used. The citrate, tartrate, and mixture of steel, are all equally good; the grand point is that the dose should be sufficient, and sufficiently often administered.

Rest is one of the most important items in the treatment of this form of sore, and in none is it more necessary. Over and over again I have seen cases in which no remedies proved of much avail till it was procured. If possible, the patient should be confined to bed for a day or two; the chancre should be bathed every two or three hours, and lightly covered with wet lint and oiled silk. A brisk purgative may be given every second or third day with the best effect, and I know of none superior to a dose of blue or colocynth pill, followed, according to the patient's taste, by a black draught, or a teaspoonful or two of the effervescing citrate of magnesia.

Whenever pain harasses the patient, sedatives may be administered. There seems to be no rule whereby we can estimate the dose to be given, except it be the severity and duration of the suffering which the ulceration entails; but I believe it may be laid down as an axiom that it is necessary to quell the pain thoroughly, and that we cannot stay the ravages of the ulcer till we have attained this object; indeed, in all cases of phagedæna, especially when the ulceration is rapid, sedatives are of the greatest value. As to the local treatment of the sore, I have for a long time used nothing but water dressing; though, if the discharge be very profuse, and the ulcer inclined to become sluggish, a mild astringent lotion is often useful.

[With regard to the treatment of sloughing chancres, *i. e.* sores which slough at a very early period without ulceration. He continues:]

In sloughing sores, I have generally found that morphia, in small doses repeatedly given, with ammonia and ether, and the use of white bread poultices, with a little of the solution of chloride of soda (Labarraque's solution), to remove the fœtor of the discharge, will change the appearance of the chancre in from twenty-four to forty-eight hours. So soon as the pain, restlessness, and quickness of the pulse begin to yield, the dose of morphia may be diminished; for in the first day or two it is often necessary to give a grain or a grain and a half, each day, and generally on the third day at latest, it is well to give a brisk purgative. Provided the leading indications be fulfilled, the choice of the purgative may be left to the experience of the practitioner, or the fashion of the day—a fortunate circumstance, as the formulæ for aperients are numerous enough to furnish inventive minds with a succession of fresh cups till medicine shall be no longer wanted, and so many different views are met with of their value, that nothing but an act of parliament could insure uniformity. The diet should be light, warm, and unirritating. Heavy meals, such as pork and beef, strong malt liquors, and spirits, have rarely failed to make the patient worse. A moderate amount of light wine, or a little Hollands and water, have generally appeared to succeed best. In the subsequent treatment, I have found no remedy superior to the dilute nitric acid in decoction of bark. If it disagree with the digestion, iodide of potassium may be substituted for it; though, even when pure, it has never appeared to me to act so well as the acid.

Chancres, when hidden from view, whether in the urethra or behind a prepuce which cannot be uncovered, are, I think, best treated, locally, by injections of nitrate of silver (gr. ii., or gr. iii. to ℥i. of distilled water). As much as possible of the discharge should first of all be washed away with water, and then the injection be slowly and carefully syringed over every part in which, by pressure, pain and hardness are discovered. These chancres heal so easily in this way, and run so different a course from the others, that I have often been tempted to believe that the access of light and air must be necessary for the development of phagedæna.

As to the question whether mercury is really necessary in primary syphilis, it may be replied that it has been conceded even by the mercurialists themselves, that every form of chancre will heal without mercury. Their objection is, that when simple treatment is trusted to, secondary symptoms occur so much more frequently than when mercury is resorted to; that although some instances occur in which the constitution is not affected, yet that they are comparatively speaking rare; and that the safest plan is rather to look at the worst side of the matter, to be ever forearmed against the possibility of subsequent mischief, and rather now and then to prescribe a needless course of mercury, than through over confidence expose one patient to years of suffering.

Modern research has exploded this very plausible doctrine. For, first of all, it is now known that the sore accompanied by inoculable bubo—sloughing sore and hard phagedæna—being rarely if ever followed by secondary affections, obviously do not require a course of mercury; while the soft form of phagedæna and its sequelæ, impetiginous eruptions, alopecia, and papulæ, may be safely said always to progress more favourably under the exhibition of bark and nitric acid, or iodide of potass, than under mercury in any form.

There remain, then, only soft chancres, or rather chancres with very little hardening and not followed by inoculable bubo; small follicular chancres, the source of so many cases of pseudo-syphilis and mistaken diagnosis; and indurated chancres of every description, up to the genuine Hunterian chancre. Here mercury in many instances, if perseveringly and judiciously given, effects a complete and lasting cure; but it is doubtful if it cures more cases than much safer means would. It is no specific; and when secondary symptoms ensue after a course of mercury, there seems every reason to believe that its previous employment has no beneficial influence on them now, and that as much mercury will have to be given as if none had been used.

Of the value of iodide of potassium in primary syphilis, little need be said. Except in indurated phagedæna and primary Hunterian chancre, I have not been able to observe any marked effects from its employment, and I believe this is now generally accepted as proven. Over both these it appears to exert a certain amount of control, but it is doubtful if its efficacy equals that of the nitric acid, while it does not appear to possess any great power in preventing secondary symptoms. But as a safe means of removing the induration of chancre and bubo, it can scarcely be rated too highly, though, like mercury, it is liable to the objection that there are certain cases over which it has little sway; while the impatience of many persons at the slowness of its action, will always be a formidable obstacle to its general use.—*Glasgow Med. Journal, April* 1859, *p.* 58.

113.-ON THE DIAGNOSIS AND TREATMENT OF PRIMARY SYPHILIS.

By Dr. Henry Thompson, Assistant Surgeon to University College Hospital, &c.

[With regard to the experience of Ricord, as embodied in his 'Leçons sur le Chancre,' (and lately translated by Mr. Maunder, of Guy's Hospital), Dr. Thompson says:]

It may be right to say here, that in one or two minor particulars I do not find the experience of Ricord entirely confirmed in this country. Whether or no the discrepancies referred to, if real, are due to difference in climate, popular habits, or to the virus itself, it is not easy to say. But all the great leading principles which have been, up to recent time, announced by him, appear to me to be equally deducible from the phenomena of syphilis, whether observed in this country or abroad.

[We believe Ricord is the first who has distinctly pointed out the great difference between indurated and soft chancre in course, results, and especially treatment. Why in one instance is a chancre followed by constitutional symptoms, and another not? Is the chancre in both instances the same? Is it a difference in the specific character of the sore, or may it be partly owing to some difference in the constitution of the individual?]

I regard as a great fundamental truth, and one which in practice unravels most of our difficulties, the proposition that there are two specific kinds of chancre, and two only, the Indurated or infecting chancre, and the Soft or non-infecting chancre; each related closely with certain concomitant phenomena which lead to its identification—to an almost certain prognosis of results, and consequently to a decided and appropriate line of treatment. I will briefly describe and then contrast each of these two varieties of chancre.

The Indurated or Infecting Chancre.—The anatomical characters of a typical example of this sore were never better described than by Hunter, who, although he recognised other sources of secondary syphilis, regarded this as the chief. And the Hunterian chancre is still considered by almost all surgeons, as the most certain of all kinds, to entail upon its subject the subsequent or secondary affections.

A pimple or pustule having been developed, a small rounded ulcer remains, the surface of which is smooth, often shining as if varnished, the centre being usually of a greyish tint. The base of the sore soon becomes indurated, and this induration has a peculiar character, thus described by Hunter: "a thickening of the true venereal kind is very circumscribed, not diffusing itself gradually and imperceptibly into the surrounding parts, but terminating rather abruptly." This character is pathognomonic, and therefore of the highest importance to be accurately noted. An ordinary degree of observation is sufficient to detect the difference between this, the true induration, and that thickening of the surrounding tissues, which is always more or less present in any chancres after caustic or other severe irritation has been applied; the latter is inflammatory thickening, its limits are by no means well marked, and in this respect contrast notably with the sensation communicated to the finger, as of a cup of cartilage imbedded in healthy tissues, and moving freely over the underlying parts, which the well marked indurated chancre presents. There is also no inflammatory areola surrounding the indurated chancre. Its edges are often a little elevated, and always adhere closely to the subjacent tissue, so as not to overhang or become undermined, and from them the surface slopes down to the centre, which is more or less scooped out, as it were, into a hollow. It is necessary to bear in mind the period at which induration occurs, since we may see the sore either before this distinctive character is developed, or (occasionally) after it has vanished. Although varying somewhat in different circumstances, it generally appears about the fourth to the sixth day, and reaches its maximum about the tenth or twelfth. It never makes its appearance later than the third week. It may remain a very considerable period, most frequently long after the ulcer itself has healed. Again, the indurated chancre is generally single, rarely multiple; it is not very contagious; is not easily inoculated, the secretion being scanty. It is however invariably accompanied—and this is a fact of very great importance, as we shall see hereafter—by some enlargement and induration of the inguinal glands in one or both groins. Glands thus affected, are to the touch remarkably incompressible, like the base of the chancre itself; more than one or two are usually affected; very commonly a group of five or six, in which case the term "Pleiades" has been fancifully but graphically applied to them by Ricord. They are not painful, and they *never inflame or suppurate*, except in rare instances, from over-exertion and in scrofulous subjects.

Such are the typical characters of the indurated and infecting chancre. Let us now examine the other and more common form of sore, which does not affect the system; and finally point out the means of distinguishing those exceptional specimens of either kind, in which these typical characters are either partially absent or are not very clearly expressed.

The Soft or Non-indurated Chancre is more or less rounded in form, has sharply cut edges, not sloping or hollowed out as the preceding. On the contrary, its surface is flat, not smooth, but irregular, marked with numerous little pits or depressions. Its borders often overhang the subjacent parts. There is no induration of any kind, and no thickening or deposit about the base of the sore, unless it has been inflamed by irritant applications, or by much friction from the dress, through total neglect of attention to it, as occasionally happens; and if so, the pseudo-induration differs widely from the true, since it shades off gradually into the surrounding tissues, and is manifestly inflammatory in its character as already pointed out. The secretion is abundant and contagious, hence these chancres are generally multiple, one following another; while opposing surfaces, as of the prepuce and glans penis, become rapidly affected, and the pus, as it finds its way along the groove behind the corona, often produces, in neglected cases, a crop of chancres encircling the glans. Hence also, the sore itself is often prone to increase considerably in size; and from the same reason it is usually slow to heal. It is also much more liable to be attacked with phagedæna than is the indurated chancre. It is not necessarily accompanied, although it frequently is, by inflammation of the inguinal glands; but when this happens, the affected gland, usually a single one, becomes painful, suppurates, and an open bubo results. From the pus of this bubo other chancres may be produced by inoculation, and the resulting sores are always of a similar character to the primary one, viz.—non-indurated chancres. And lastly, most important fact, *there is no resulting constitutional affection.* It is essentially a local disease, and produces only local symptoms.

As might be inferred, from the abundance of the secretion furnished by this species of chancre, it is much more commonly met with than is the indurated chancre, which has very little secretion, and is therefore less readily communicated. In the Hôpital du Midi of Paris, about four out of every five cases belong to the soft or non-infecting variety.

We have thus two distinct species of chancre. The one with an indurated base, invariably accompanied by indurated inguinal glands, which do not suppurate, and certain to be followed by secondary symptoms. The other, without induration, often but not always accompanied by a suppurating bubo, innocent of constitutional infection.

Treatment of Soft Chancre.—The first thing to be done, is to destroy the specific sore, to produce in its place an innocent one, which will cicatrize speedily, and so save the neighbouring gland from the occurrence of suppurating bubo. We apply caustic at the first visit, and a powerful one. The nitrate of silver is not to be depended on with certainty, and its application is exceedingly painful. That which I prefer, is *potassa c. calce*, or Vienna paste, made in very small sticks, so as to be applied with ease and certainty. This is both more powerful and more manageable than either nitric acid or potassa fusa. The rule is, to extend the cauterizing action to the sore and *a little beyond it.* Practised before the fourth day of the development of the chancre, it is almost absolutely certain to destroy its venereal character, and save the patient any subsequent symptom.

Ricord has recently substituted for this his long favourite caustic, the strong sulphuric acid made into a paste with charcoal. Undoubtedly this is more powerful, but it is intensely painful, and with much deference to his opinion, I see no reason to exchange the former for the latter. Subsequently to the caustic application, it is desirable to dress the sore throughout with some lotion, appearing to possess the power of depriving the purulent discharge of its specificity, if it still remains, and thus preventing the inoculation of neighbouring parts, or of hardening these, so as to render them in some degree less liable to be infected. A solution of tannic acid in water is frequently employed for this purpose, and answers to the "vin aromatique" of Ricord. I generally employ the nitrate of lead, or the chloride of zinc, both of them being disinfectant as well as astringent, and in the proportion of half a grain to one grain to the ounce of distilled water.

What constitutional treatment is required in these cases? Acting on the principle that we have a purely local and not a constitutional affection to deal with, it is hardly necessary to say, that mercury is wholly out of place in this the soft chancre. Here is the great boon which a certain prognosis affords us. It gets rid of the indiscriminate and even of the doubtful employment of mercury; it demonstrates clearly the exceptional cases in which the metal is necessary. Hence it follows, that in the great majority of chancres, mercury and iodide of potassium are wholly contra-indicated. Hence it is that we have long heard of the treatment of syphilis without mercury, and have seen cases reported in which the sores heal rapidly, and no secondary results occur after non-mercurial treatment. The distinctive character of the chancre has, however, not been reported, probably not particularly noted. All these cases are examples of local and not of infecting disease, and would give rise to no form of constitutional affection, whatever be the medicines administered. But the soft chancre is often slow to heal. In this case nothing appears to hasten cicatrisation so much as a mild form of iron given internally, and the potassio-tartrate is the favourite, and appears to be the most successful one for the purpose. My constant prescription at the hospital is three drachms to eight ounces of water—one ounce to be taken twice a-day. In Paris it is employed locally also, and is regarded as one of the best external applications.

The design of this paper cannot include the treatment of phagedænic ulceration, or of suppurating bubo, the possible results of soft chancre.

Treatment of the Indurated or Infecting Chancre.—Supposing that we follow the rule invariably to cauterize every sore that comes before us in its early stage, that is, before the fifth day of its development, we shall apply the most certain remedy in our power, indeed, an almost unfailing one, whether against indurated or non-indurated chancre, and which variety we are dealing with cannot always be determined at so early a period; for induration rarely manifests itself before the end of the first week as already observed. The induration, however, once established, no cauterization will save the system from infection. It is the first sign of a constitutional affection ; the herald of secondary syphilis. Caustic may, however, be still employed to promote the healing of the sore, and if there should be uncertainty as to the nature of the induration, the patient gets the benefit of the doubt, and we may still have the good fortune to nip syphilis in the bud.

If induration be well marked ; if the adjacent lymphatic glands exhibit the same character ; in short, if there be no doubt respecting these certain signs of an infected constitution, a mercurial treatment should be commenced at once. Under this, induration will disappear, and other secondary symptoms will either be diminished in intensity, perhaps postponed, or it may be, that their manifestation will be altogether suppressed. The form which I prefer for ordinary cases is the iodide of mercury, in doses of half-a-grain to one and half twice a-day, the medium quantity of three-quarters of a grain to one grain being that which it appears to me generally the best to employ. It is right to commence with the small dose, three-quarters of a grain, and it is generally sufficient. I have once caused profuse salivation (unintentionally of course) with a few half-grain doses (a very rare occurrence) ; and I have failed to produce action on the mouth with two grain doses, although the syphilis has been cured.

In some instances the smallest dose, associated with mercurial inunction once a-day, acts well. Where the stomach or bowels are particularly irritable to the iodide of mercury, the inunction is indicated. Almost invariably it requires a little opium to prevent relaxation of the bowels. My almost constant formula is, an addition of two grains of Dover's powder to the grain of iodide, following this proportion whatever the dose of the mercurial. Faint signs of action on the mouth usually appear in eight or ten days. By this I mean slight swelling and sponginess of the gums, especially of the processes which rise between the lower incisor teeth ; afterwards a little mercurial fætor shows itself. This condition it is very undesirable to exceed ; to produce marked soreness of the mouth, is, I think, a work of supererogation, but without value to the subject of it. All the beneficial effects of mercury are to be gained short of this point ; indeed it is prejudicial to cause salivation, and all such action should be regarded as reckoning against, rather than in favour of a cure. Such is the result of Ricord's experience, and my own observation fully indorses it. Meantime the patient should well sustain the powers of life, by nutritious food and exercise, and maintain the excreting functions of the skin in activity, by occasional hot air baths, and by daily thorough ablutions and friction. For local application to the sore, perhaps there is no better than the old-fashioned black wash ; but the disinfecting nitrate of lead or chloride of zinc, as above mentioned, may be used ; and generally the sore heals tolerably well although the induration remains.

It is not regarded as within our limits to consider here the numerous details connected with the nature and treatment of the subsequent manifestations of this hydra-headed disorder. Interesting as these are, we shall, I think, have ample scope for discussion in the points already alluded to. I will therefore simply conclude with a *resumé* of the points laid down, embracing also a few legitimate deductions therefrom, that we may have a bird's-eye view of the subject presented to us.

1. That there are two distinct species of chancre, and two only, viz.—the indurated or infecting chancre, and the soft or non-infecting chancre.

2. That examples of either of these two forms may be attacked with phagedæna; but that this, by far the most commonly happens with the soft or non-infecting variety.

3. That the indurated chancre is never followed by specific suppurating bubo, but always gives rise to indurated swelling of the nearest related lymphatic glands, which do not suppurate.

4. That the soft chancre frequently, but not always, gives rise to the swelling of the lymphatic glands, in which case an inflammatory suppuration results, and the pus is capable of producing a soft chancre analogous to the original one.

5. That the soft, as compared with the indurated chancre, is presented in practice certainly in the proportion of three or four to one. Hence, putting treatment out of view, of all chancres met with, only one in four or five is followed by constitutional syphilis.

6. That in a very large majority of cases in which chancres are seen by the surgeon in their earlier stages, a decided prognosis may be safely made as to the future development of secondary symptoms or the contrary.

7. That the diagnosis of indurated chancre being clear, mercury is the remedy, *par excellence.*

8. That the diagnosis of soft chancre being clear, no mercury or other so-called specific treatment is necessary.

9. That in doubtful cases no mercury should be given, but the evolution of symptoms should be awaited.

10. That it is impossible to make too widely known the importance of treatment at the first sign of a suspicious sore; since early and efficient cauterisation infallibly prevents infection of the system, and should invariably be applied to all such sores at the earliest possible period.—*Liverpool Medico-Chirurgical Journal, Jan.* 1859, *p.* 1.

114.—ON SYPHILITIC INOCULATION.

By Henry Lee, Esq., Surgeon to the Lock Hospital.

If there is one pathological fact that has been more frequently reiterated of late years than another, it is that a primary syphilitic sore may be distinguished from every other affection by its secretion, when inoculated, invariably producing the characteristic syphilitic pustule. Although syphilitic inoculation was practised by Hunter and other accurate observers, it remained for Ricord to draw well-digested conclusions from the facts which this mode of investigation presented for our interpretation. By patient experiment and vigorous reasoning, Ricord established the truth, which has now been confirmed throughout Europe, from Italy to Norway—namely, that certain forms of syphilitic sores will produce, when inoculated, their like, which, in their turn, will again furnish a secretion capable of being again inoculated with similar results. It would be difficult to overrate the importance of this discovery, so analogous to that of the small-pox inoculation; but practical men have nevertheless been unable to see in the experiments in question a conclusive representation of that which they daily observe in practice. That certain forms of primary syphilitic disease will produce the characteristic pustule when inoculated, all must allow; but it does not follow, on the one hand, that all primary syphilitic sores are alike capable of being inoculated; nor, on the other, that when inoculated, they will necessarily yield the same result. Under these circumstances, and without proof as to these two last-mentioned particulars, to say that a sore is syphilitic because it produces a characteristic pustule when inoculated, and that it produces a characteristic pustule because it is syphilitic, is manifestly to reason in a vicious circle. The propositions themselves are undoubtedly true, but they cannot, without further proof, be received as excluding other modes of syphilitic infection and other forms of primary syphilis.

We are led then to ask, in the first place, whether there is no form of primary syphilis except that which commences as a pustule? This question is important, since surgeons engaged in practice very seldom have an opportunity of observing the primary syphilitic pustule, and still less frequently have they an opportunity of tracing any secondary symptoms consequent upon it. Now, during the years 1855 and 1856, we examined at this hospital the secretion from a large number of primary syphilitic sores, and amongst them were ninety-five cases presenting all the ordinary characters of the primary infecting sores. The secretion from these ninety-five cases consisted of epithelial *dêbris* floating in a serous fluid, or of globules of various shapes and sizes, which did not, upon the addition of acetic acid, yield the well-defined nuclei characteristic of pus. In a very considerable number of cases, the secretion appeared to consist of nothing but epithelial *dêbris* and serous fluid, and in some the primary affection yielded no secretion at all.

What reason, then, have we to believe that these primary sores commenced as pustules, or that, unless artificially irritated, they would produce pus at all? and, secondly, what evidence have we that every syphilitic sore produces a secretion capable of being inoculated in the same manner? It is to this last point that I wish particularly to devote this lecture.

When the secretion is taken from a chancre during its period of progress, or when stationary, and properly inoculated, the following results may, according to M. Ricord, be invariably observed:—During the first twenty-four hours the inoculated point becomes red; from the fourth to the fifth day the secretion becomes purulent, and a pustule, with a depression in its centre, resembling those of small-pox, is fully formed. ("Traité Pratique," p. 89.)—The inoculation never fails when properly performed: "L'inoculation n'échoue jamais quand on prend le pus dans les conditions voulues, et qu'on l'applique bien." (p. 94.)—The appearance produced is said to be regular, characteristic, and uniform. (p. 135.)—It is useless to multiply quotations upon this point, the facts concerning which have been so generally received and so often republished.

In the year 1856, I published an account of some cases in which, notwithstanding the assertions so unreservedly made, and so generally received, I had not been able to produce any effect by ordinary inoculation. The experiments were tried in this hospital, care being taken to select instances in which the sores had not begun to heal; and amongst the cases were the following:—

Thomas C., aged sixteen, was admitted on the 27th of November, with an indurated sore, extending half-way round the margin of the prepuce, causing phymosis. This had commenced a fortnight previously. The secretion from the sore was carefully inoculated on the patient's thigh in several points. The inoculations were followed by no result, and the patient was soon afterwards affected with secondary syphilis.

James G., aged twenty-five years, had a large indurated sore near the orifice of the prepuce, which had appeared as a pimple four weeks previously. The secretion was carefully inoculated in several points, but without result. Constitutional syphilis followed.

Matilda P. presented a well-marked indurated sore on the left external labium, which she stated had existed one week only. The secretion, which consisted of a thin serous fluid, was carefully inoculated. No result followed the inoculation.

Julia B., aged twenty-one, had a red, glazed sore on the external labium, surrounded by distinct specific induration. The disease had commenced three weeks previously as a pimple. The secretion from the surface of the sore was inoculated without result.

Since the period above referred to, we have inoculated the secretion from a considerable number of sores presenting the characters of the specific adhesive inflammation; and, as a rule, no result has been obtained where no artificial irritation had been applied. The secretion, in these cases, has consisted chiefly of epithelial *débris* floating in serum, more or less turbid. The character of the secretion of these sores may readily be altered by anything that is brought in contact with them. The application of caustic, or a thick scab which confines the secretion, or a piece of linen which sticks to the sore, will produce a temporary discharge more or less puriform; but dress the part with wet lint for a day or two, and the natural character of the discharge will again be evident.

As a rule, then, I say—at least that has been our experience at this hospital—that this kind of primary sore is not, under ordinary circumstances, capable of being inoculated with the lancet; and we, therefore, cannot but come to the conclusion, that those who have maintained that all primary syphilitic sores can be alike inoculated, have generalized too hastily.

But a much more important question remains—namely, does it follow that because these sores are not capable of being inoculated by the lancet, in their ordinary condition, that therefore they cannot be communicated at all? And, if capable of being inoculated, under certain circumstances, are the results produced identical with those produced by the inoculation of the secretion from suppurating sores?

In order to determine thse questions, I would request your particular attention to some cases now in the hospital, and particularly to that of a boy named A. The details of this case, and the results of the inoculations performed, I will immediately mention; but before doing so, I would draw your attention to the fact, that, in practice, we continually meet with cases which, in their early stages, are similar to the one I am about to describe, and which, with or without treatment, become covered by epithelium, and in which, although the specific induration remains, yet the surface affords no fluid secretion whatever. Inoculation, in the ordinary way, at this period of the disease, would be entirely out of the question. But if a person in the condition I have mentioned gets married, his wife will have a very good chance, even before her pregnancy, of becoming infected with syphilis. Some very distinct cases, where this has happened, have fallen under my observation. How, then, is the disease communicated in these instances? We have here a rather numerous class of cases in which the sores have become covered over with cuticle, which yield no pus or fluid secretion of any kind, and yet which are capable of communicating infection from one individual to another. How, I ask, does the inoculation take place from a sore affected only with the specific adhesive inflammation, either before or after that sore has apparently healed? Some light will, I think, be thrown upon these questions by the careful consideration of the facts presented to our notice in the boy A., at present in the hospital.

This lad had gonorrhœa six months before his present attack, but otherwise he had never had any venereal symptoms. His present disease was of about a fortnight's duration. He first perceived a superficial sore behind the corona glandis, which healed in a few days. Two or three days after the first appearance of this sore, a little pimple appeared on the outer skin of the prepuce. This was squeezed, and discharged a watery fluid. A sore then formed, which continued to increase. He applied to me on the 26th of July, with a well-marked

Hunterian chancre. This was of a circular form, surrounded by well-marked and accurately-defined induration, and discharged a white turbid secretion. This fluid was placed under the microscope, having previously been mixed with a little acetic acid. It contained no pus-globules. The glands in the groin were enlarged and indurated, but not inflamed.

July 27th. The secretion from the sore was inoculated in several points on the patient's thigh.

29th. The boy was admitted into the Lock Hospital. The inoculations had been followed by no result. The secretion from the sore was again examined, and found to contain no pus.

31st. The sore, which continued to increase in size, had been dressed with linen and cold water since the last report. The linen appeared to have irritated the sore in some degree, and numerous globules now appeared in the secretion; but upon the addition of of acetic acid, the distinct outline of the pus nuclei were not visible. Several fresh inoculations were made. The sore was dressed with wet lint.

Aug. 3rd. None of the inoculations had succeeded. The secretion from the surface of the sore, placed under the microscope, and treated with acetic acid, did not appear to contain any pus. The sore was ordered to be dressed with blistering plaster. The glands at the back of the neck were now enlarged, and the skin presented for the first time the appearance of a syphilitic eruption.

5th. None of the former inoculations had been followed by any effect. The application of the blistering plaster had produced a superficial slough on the surface of the sore, and blistered the surrounding skin. Some distinct pus-globules were now visible in the secretion from beneath the slough. This secretion was inoculated upon the thigh in several points.

7th. The sore now again secreted no pus. Fresh inoculations were performed.

10th. The sore was dressed twice yesterday with the sabine ointment, and it now yields a copious secretion of pus. This was inoculated in several points in a fresh place upon the thigh.

12th. The inoculations last made had succeeded. The primary sore still yielded a copious secretion of pus.

14th. The sore had been dressed with lint, kept wet with water, since the last report, and now no pus could be detected in the secretion.

The inoculations, both of the 5th and of the 10th, had now succeeded. They presented the appearance of circular red patches, with some elevation and thickening of the cuticle. In one place there was the appearance of a broken vesicle, from which a serous secretion exuded. This secretion from the inoculation was inoculated on the thigh.

17th. The inoculation from the inoculation had succeeded. It presented the appearance of a red circular patch, from which the cuticle was abraded, with slight thickening of the skin. It had not at all assumed the appearance of a pustule, nor was anything like pus secreted from its surface. A single pustule, surrounded with very little inflammation, had formed in one of the points first inoculated. The eruption on the surface of the skin was fading. All the inoculations in this case were made with a lancet used for no other purpose, kept carefully wiped, and wrapped in paper.

19th. The inoculations appeared as separate red patches on the skin, which in these situations was slightly raised and thickened, but no induration extended into its substance. The solitary pustule which had appeared had dried up. The original sore was healing, but being dressed with the sabine ointment, it afforded a purulent secretion, which was inoculated upon a patient who never had had constitutional syphilis, but who was apparently suffering from organic disease of the liver.

21st. The inoculations presented the same appearances as before; they appeared covered in certain parts with thin scales; they were tender to the touch, with slight thickening on the surface, which did not extend into the substance of the cutis. The inoculations nowhere presented any appearance of ulceration. The inoculation performed on the 19th had produced a small, dark-brown, circular patch, in which the skin was slightly elevated. The secretion from the original sore was now again inoculated on a second female already affected with constitutional syphilis.

24th. One of the inoculations on the boy has a slight tendency to ulcerate. The others are desquamating and losing their colour.

The single inoculation on the first woman unaffected with syphilis has assumed the form of a small red pimple. The redness gradually fades into the colour of the surrounding skin. The cuticle at the inoculated part is thickened and elevated.

The inoculation on the second woman already affected with constitutional syphilis is less marked. There is only a slight redness and elevation at the inoculated part.

The particulars of these two last cases we will follow out on a future occasion. From the facts which have already been brought under notice, the following very important points are proved:—

I. That some primary syphilitic sores cannot readily be inoculated in the ordinary way, either during their period of progress or afterwards.

II. That the sores which are not capable of being thus inoculated, as far as we have hitherto seen, are those affected with specific adhesive inflammation, and which do not, except under conditions of artificial irritation, secrete pus.

III. That these sores, although not capable of being inoculated in the ordinary way, will nevertheless, when irritated, furnish a secretion which is capable of being inoculated.

IV. That the inoculations thus produced do not give rise, as a rule, to either suppuration or ulceration, but to some adhesive form of inflammation.

The inoculations to which I have now directed your attention, and the results of which may be seen in two other patients now in the hospital, besides those to whom I have above referred, have all assumed a remarkably uniform character.—*Lancet, Jan.* 29, 1859, *p.* 103.

115.—*Bismuth in Gleet, and Chronic Leucorrhœa.*—Dr. CABY in his inaugural thesis states that great advantage has followed the treatment of gleet by injecting, three times a-day, a mixture formed of 30 parts of subnitrate of bismuth and 300 parts of rose water—all inflammation having first completely subsided. He states that he has met with the same success in chronic leucorrhœa, when he employs the bismuth in powder. He also finds the combination of bismuth with copaiba or cubebs a good means of preventing the eructations, stomachic irritation, and diarrhœa these substances sometimes give rise to.—*Union Méd.*—*Med. Times and Gaz., March* 19, 1859, *p.* 297.

116.—*Alum and Savin in Condylomata.*—In these raised patches of skin, known as mucous tubercles, or condylomata, existing about the verge of the anus and around the genitals, but especially those which are wide spread and flat, more extensive than prominent, Mr. Coulson, at St. Mary's Hospital, has been remarkably successful in producing the diminution of the swelling, and causing them to dry up, by the application of a powder consisting of equal parts of savin and alum. This is quite painless, and a cure is generally completed in a few days. Of course, an adjunct to this is cleanliness and the free use of soap and water.—*Lancet, Dec.* 11, 1858, *p.* 605.

DISEASES OF THE SKIN.

117.—SEVERAL CASES OF INVETERATE LEPRA SUCCESSFULLY TREATED; IMPORTANCE OF REGULATED DIET, WITHOUT MEAT AND STIMULANTS.

(Under the care of Dr. WILLSHIRE, Charing Cross Hospital.

If there is one class of diseases in the treatment of which the value of practical over theoretic knowledge is more apparent than in another, it is that of disease affecting the skin. Observation and clinical experience here are in value far beyond the most scientific pathologic considerations. To be able to treat these diseases with any success, their physiognomic characters must have been carefully and repeatedly studied under numerous modifications and phases, and a sort of ready aptitude must have been attained in selecting for each form under which a special disease manifests itself the more appropriate treatment. There lies particular worth in this latter kind of tact, as the powerful internal agents usually employed by dermatologists, and local applications to the cutaneous surface, will constantly make matters worse, if they do not succeed in making them better. No book-learning, no reflective pathology, alone, will help to the possession of the clinical qualification here alluded to; there must be a practical familiarity with individual cases of multiform variety. We were forcibly reminded of the importance of this truth when inquiring, a short time ago, into the history of a case of inveterate lepra, under the care of Dr. Willshire at this hospital.

C. J., aged 62, a weaver from Norwich, was admitted for what he termed "a very unpleasant scaly kind of eruption," which he had had for forty-eight years, with occasional slight intermissions. He had been under treatment, he stated, "times without number," had been sometimes slightly relieved, and had also been made much worse, by the treatment pursued. The patient was found to be covered generally by patches of lepra, and had a quick, irritable manner with him, which struck everyone's attention. When first seen, Dr. Willshire observed that there was something about the man and his manner that led him to believe the patient should not be subjected to the influence of certain drugs he was in the habit of using. He thought it not unlikely that the patient might be made even *worse* by arsenic, iodine, and by mercury. Under this impression, the man was ordered to take half a drachm of the tincture of cantharides, and a drachm of the tincture of hyoscyamus, in six ounces of the decoction of elm-bark, during the day, in divided doses. He was also ordered to use an ointment of pitch and lard, to have a warm bath twice during the week, and a diet of bread, milk, eggs, and water-cresses. At the next visit, the patient entered again upon the history of his complaint with great acuteness, though with much volubility. Amongst other things, he begged that he might not have any mercury to take, as it, along with some other things, "had nearly killed him." He next pulled a bundle of prescriptions out of his pocket, and, selecting some, handed them to Dr. Willshire, observing that "these are the medicines that must not be given." They were found to be formulæ containing the iodide of potassium, arsenic, and mercury. On being assured that he was not taking either of these drugs, he was satisfied, but hinted that he had doubts about the propriety of his new diet. The treatment was commenced on the 2nd of November. On the 6th, pain over the pubes, with scalding on passing urine, came on. On the 15th of December, he was discharged at his own request (wishing to spend Christmas in the country), free from all appearances of the malady, and feeling much stronger than before.

During the course of last year, numerous cases of lepra have been under the care of the same physician, and amongst them a few of a very inveterate character. We will allude to one or two of these latter:—

C. C., a baker from Acton, aged forty. Had had the disease for twenty years. The irritation of the cutaneous surface was often so extreme in bed that he scratched himself until he bled, and could collect half a teacupful of scales in the morning. He was admitted on January the 21st, and discharged on March the 3rd,—spotless. The treatment consisted mainly as follows:—The application of an ointment, composed of calomel, pitch, and lard; the internal use of the bichloride of mercury in the decoction of elm-bark; a warm bath twice in the week; milk, bread, eggs, and potatoes for diet.

H. M., a traveller, residing in London, aged forty-nine. Had had lepra for five years, pretty generally diffused over the body. On the legs it was combined with eczema, giving rise to the appearance known as *psoriasis*. The extremities were œdematous. He was admitted on March the 3rd, and discharged at his own request, on account of business matters, on the 29th of the same month. He was greatly benefited. The treatment was the calomel and pitch ointment, with the internal use of arsenic, along with the tinctures of opium and of cinchona; the recumbent posture stringently enjoined; a warm bath twice in the week; and a diet deprived of meat and alcoholic fluids ordered to be adhered to.

Dr. Willshire appears to be particularly fond of the decoction of elm-bark as a vehicle for some of the more potent agents he employs. Amongst the latter, we may mention arsenic, the protoiodide of mercury, the bichloride of mercury, sulphur with the oxysulphuret of antimony, the tincture of cantharides, &c. He forbids, in almost all instances, the use of meat and fermented fluids; and the patients are recommended to eat plenty of water-cresses, and lemon juice is sometimes ordered. Children are considered to have a tolerance of arsenic, just as they have of quinine and mercury, but an antagonism to opium. In secondary syphilitic eruptions, the protoiodide of mercury is most in favour; and a few months back we saw a case of *lupus superficialis* progressing really admirably under the local use of cod-liver oil on poultices, and the internal employment of arsenic. Arsenical ophthalmia was being cautiously but purposely kept up in this case, as when the drug was pushed to a less extent there was a stand-still to continued improvement. Dr. Willshire constantly impresses on his class that it is a grand thing in these diseases to know what you must *not* do, and that much benefit will constantly be obtained from refraining from the use of soap, from the employment of starch and calamine powder, poultices, and warm-water dressing, and mild alterative doses of mercury-with-chalk and soda.—*Lancet, March* 12, 1859, *p*. 262.

118.—*Treatment of Erysipelas in the Limbs by Elevation.* By Mitchell Henry, Esq.—We have noticed a very useful plan of treatment for erysipelas of the extremities adopted by Mr. Mitchell Henry at the Middlesex Hospital, which is worthy of a fair trial elsewhere. It consists in elevating the affected leg or arm in a vertical direction, above the horizontal plane of the body. This causes a subsidence of the swelling associated with the disease, and completely removes the pain; the circulation in the veins is accelerated towards the heart, and the hitherto inflamed and red skin assumes a pallid aspect. All these good results we witnessed, on the 3rd of December, in a very severe case of erysipelas attacking the left leg of an elderly man, who suffered most severely from acute pain consequent on the swelling of the limb from the inflammation. In twelve hours both the pain and the swelling had entirely disappeared under this very simple mode of treatment. The same good effects had also ensued in a case of erysipelas of the elbow in a boy who was pointed out to us. The limbs, especially the inferior, may be supported on pillows, but it is more suitable to elevate them by the hand or the foot by means of a cord attached to the framework of the patient's bed.—*Lancet, Dec.* 18, 1858, *p.* 631.

119.—*Bed Sores; Tannate of Lead.*—Mr. Leclerc, senior, physician of the civil hospitals at Laon, indicates in the *Revue Médicale* a method which is calculated to prevent mortification over the sacrum As soon as the skin reddens or becomes painful, he prescribes a layer of tannate of lead in a humid state, to be spread over the threatened part, and the following is the formula for its preparation:

Corticis quercus contusæ, 1 oz.; aquæ, 8 oz.
Reduce by boiling to 4 oz; strain; add
Liq. plumbi diacetatis q. s. until no further precipitate is formed.
The deposit is collected upon a filter.

Mr. Leclerc asserts that of all the topical remedies which he has used for the treatment of this most troublesome complication of protracted disease, none is preferable to tannate of lead employed as he describes.—*Journal of Practical Medicine.—Dublin Hosp. Gazette, Dec.* 1, 1858, *p.* 365.

120.—*Caustic Lint. New Treatment of Ulcers.*—Nitrate of silver is never applied to sores, except in the solid state or in solution. In the former case its action is often too severe; in the latter it is sometimes too transient. M. Riboli has conceived the idea of dissolving nitrate of silver in a small quantity of water, soaking pledgets of lint in the solution, and drying them. This caustic lint, applied to ill-conditioned ulcers produces a more permanent effect than the remedy in a liquid state; and as the author proposes different degrees of concentration for the solution the activity of the treatment may be varied, according to the nature of the case, and the more or less advanced stage of the affection.—*Dublin Hospital Gazette, Aug.* 15, 1858, *p.* 252.

121.—*Starch Bandages for Varicose Veins and Ulcers.*—For some time past the following method, in the treatment of varicose veins of the leg, occurring either as a specific affection or associated with ulceration, has been adopted at the Great Northern Hospital, by Mr. Price:—The leg which presents the varicose condition is firmly encased in a bandage, which is saturated with a mixture of starch and glue. This case, when dry, offers a uniform support to the swollen vessels of the leg; and, in the course of a few days, the well-known distressing symptoms dependent upon this condition of the veins entirely, or in a great measure disappear. When the varix is accompanied with ulceration, the same plan is adopted, but an arrangemant is made so as to allow the ulcer to be treated without disturbing the case. A *window*, somewhat larger than the circumference of the sore or sores, is cut while the bandage is moist. If the sore is superficial, and the affection not very chronic, it is found that the lesion is soon repaired, and that there is no occasion to leave the ulcer uncovered. This plan of treatment has, in many instances, proved not only palliative, but as effective as obliteration of the vein or veins by means of the twisted suture, while it possesses the advantage of being available in almost every instance of varicose enlargement of the superficial veins of the extremities. The bandage, when well applied, can be worn for many weeks, or even months, but the rapid subsidence of the swelling of the leg, in some instances, may require a re-casing of the limb at an earlier period.—*Lancet, Oct.* 30, 1858, *p.* 451.

122.—*Treatment of Gunpowder Burns.*—When a charge of powder is fired near an exposed part of the body, a portion of the unburnt powder is deposited in the skin, proportionately to the imperfection of the combustion and the coarseness of the granules. The inflammation which results is not sufficient to procure the elimination of the grains, and the person remains tattooed for life. Hitherto the only means of preventing such a deformity has consisted in the picking out by the fine point of a knife or needle each separate granule. This, though a very tedious and painful process, answers well enough in burns of a limited size; but in a recent case in which the whole side of the face was completely blackened, Professor Busch resolved to to try a plan he had seen Hebra adopt for the removal of freckles, viz., exciting an eczematous inflammation by means of a solution (5 gr. ad 8 oz.) of corrosive sublimate. This was kept applied during several hours for five days, with the effect of exciting a smart eczema, and detaching the granules. The burn was quite recent, and whether the means used is applicable to burns of an older date, remains to be tried.—*Med. Times and Gazette, Jan.* 8, 1859, *p.* 42.

123.—*Perchloride of Iron in In-growing Toe Nail.*—After fomentation, Dr. Alcantara interposes beneath the nail a small piece of lint, upon which some ointment of perchloride of iron has been spread. All the surface of the excrescence deprived of its epidermis is covered over with this, and the dressing is renewed twice a-day. At the end of four days, the excrescence becomes dry and mummified, and is easily detached. The wound then assumes a regular aspect, and the case is completed at the end of a week.—*Union Med.—Med. Times and Gaz., Feb.* 19, 1859, *p.* 182.

124.—*Tincture of Iodine in Corns.*—Dr. Varges states that corns may be rapidly cured by the application of the tincture of iodine, the corn disappearing in the course of a few days if touched with the tincture several times a-day. If the corn be situated between the toes it should be covered with a piece of linen steeped in a mixture of the tincture and glycerine.—*Journal of Practical Med.—Med Times and Gaz., Jan.* 15, 1859, *p.* 67.

125.—*Cerate of Opium in Carbuncle.* By Dr. W. Von Gutzeit.—A cerate containing one half drachm of opium to two ounces of simple cerate, is spread thickly upon linen, and applied to the swelling and its neighbourhood. This application diminishes pain quickly—generally in about half an hour—hastens suppuration, the detachment of the slough, and the cicatrization of the suppurating surfaces, and ameliorates the general condition of the patient. No medicine was given internally. The opiate cerate can be used at any stage of the disease, and its curvative effects seem to surpass that of every known remedy.—*Dublin Hospital Gazette, April* 1, 1859, *p.* 100.

126.—*Incubation of Measles.*—The period of incubation of measles has been variously estimated. Dr. Kerchensteiner, Assistant in the Munich Hospital for children, has endeavoured to fix it by observing the day on which the eruption appeared on the second affected child of a family, reckoning from the day it appeared on the first; and only such cases were collected and tabulated as could be clearly shown to have no communication with any other measle patients. Of 37 cases so collected, the eruption appeared in 34 between the 10th and 12th day.—*Bayer. ærztl. Intellgzbtt.* and *Prager Vierteljahrschrift f. d. prak. Heilkunde.—Edinburgh Med. Journal, June*, 1858, *p.* 1144.

DISEASES OF THE EYE AND EAR.

127.—ON THE OPHTHALMOSCOPE.

By Dr. R. Hibbert Taylor, Surgeon to the Eye and Ear Infirmary, Liverpool.

[After describing the instrument used by Helmholtz, of Kœningsberg, who, in 1851, first suggested the idea of illuminating the deep textures of the eye-ball, for the purpose of observation in diseases of this organ, and the subsequent modifications in the illuminating apparatus up to the present simple instrument used, the writer continues :]

Let me say a few words as to what we ought to see on examining a healthy eye with the ophthalmoscope; for in this, as in many other instances, where natural objects are beheld under new and hitherto untried circumstances, the difficulty is not so much to discern the physical appearances as to know what they are when we do see them, and what they indicate. As it is of the utmost importance that the patient should keep his eye perfectly steady while undergoing examination, he should be desired to look at some fixed point ; and the top of the right or left ear of the examiner, according to the eye under inspection, will answer the purpose very well, and besides places the eye of the patient in a favourable position for exhibiting the entrance of the optic nerve into the retina.

As to the arrangements to be observed in using the ophthalmoscope in the examination of an eye, it is necessary that the chamber should be darkened as much as possible. The examiner seats himself in front of the patient, and slightly elevated above him, in order that he may be able to look downward through the pupil to the lower portion of the retina. A moderator lamp or gas burner should be placed at the side of the patient, next the eye to be examined, on a level with this organ, and slightly behind it, and as near to the head as convenient, in order that the eye may obtain all the advantage of the light, and to avoid the necessity of holding the mirror very obliquely, which we must do if the light is distant,

A candle or taper is sometimes employed, which may be placed in a candlestick, the patient supporting it upon either shoulder; as a general rule, however, a more brilliant light is necessary, in order to make a satisfactory examination. The pupil of the eye to be examined may be dilated or not, artificially, according to the skill and experience of the examiner. To those who do not possess a highly cultivated "*visus eruditus*," I should say that dilatation of the pupil is indispensable.

On first looking into the eye, illumined by the light reflected from the mirror, we merely perceive a reddish golden coloured tint, which fills the pupil and the interior of the globe, and it is only after having looked attentively for some time, and moved the mirror to and fro, so as to bring the retina into proper focus, that we begin to distinguish individual objects through this general blaze. If the patient turns the eye slightly upwards and inwards in the direction above mentioned, we shall perceive a small white shining disc, well defined upon the reddish background, from the centre of which emerge the blood vessels of the retina. This pearly white body is the papilla or entrance of the optic nerve, and is situated a little internal and inferior to the centre of the retina. Its appearance has been compared to that of the full moon on a clear night, and the comparison is not inapt. Its average apparent diameter is about three lines, and in form it is more frequently somewhat oval in its vertical diameter than round. The blood vessels which arise from about the centre of the disc, and turn over to be distributed to the retina, may be distinguished from each other ; the arteries by their bright scarlet hue, and the veins by their larger diameter and brownish or bluish colour. There are, generally, from four or five twigs of each kind.

This appearance, when distinctly seen, is singularly beautiful, and in the person of a young sailor, whose eyes I had frequently an opportunity of examining, the vascular bundle was easily visible, and presented all the well defined clearness of a wax preparation. In other instances, I have not been able to distinguish it at all.

Desmarres states, that pulsation can be observed in both sets of vessels, but especially in the veins on making gentle pressure on the globe of the eye.

The internal structures of the eyeball, which may be subjected to examination by the ophthalmoscope proceeding from within outwards, are the retina, the choroid, and the sclerotic. A few remarks upon their normal appearances, seen under the instrument, may now be made.

The retina is transparent, and admits of the parts beneath it being seen. It is perhaps impossible to see it apart from the vessels which traverse its surface. It presents a reddish concave appearance, furrowed by vessels, through which can be distinguished the arborescent figure of the pigmentum nigrum and choroid vascularity. In subjects possessing a dark coloured pigment, it resembles a light cloud of a bluish tint, floating over a back-ground of reddish-brown. Examined with the mirror alone, the retina presents a number of fine light-coloured rays, which appear to emanate from the border of the papilla.

The vessels of the retina are the continuation and ramifications of those which have been already mentioned as issuing from the papilla.

The *macula lutea*, *limbus luteus*, or "yellow spot of Soemering," as it has been variously named, is by no means easily detected, unless by one who is expert in the use of the ophthalmoscope. It is best seen in young subjects with expanded pupils. It is of a dull dead hue, deficient in the shining reflection observed in other portions of the retina. It is about the size of the papilla of the optic nerve, and is placed on its temporal side. On magnifying the parts considerably, we find a brilliant point marked in the centre of this spot, which is the *fossa centralis* of the retina, about equal in diameter to the central artery of this membrane.

On dissecting the eye, in the dead subject, we find a minute transverse fold in the situation of the *macula lutea*, a fact which is noticed in all anatomical works. Desmarres states, that he has never been able to detect this fold with the ophthalmoscope in the living eye; and is hence inclined to believe, with Rosas, Dalrymple, and other authors, that this appearance is a *post mortem* effect, and is to be ascribed to the shrinking of the globe of the eye.

The structure of the choroid is easily examined with the ophthalmoscope, owing to the tranparency of the retina; and the less deeply the pigment which invests it is coloured, the more easily we perceive its numerous and complicated vessels.

Its surface presents numerous dark coloured lines, irregular both in form and disposition, which are in fact the pigment cells of the choroid. These cells and the vessels of the choroid do not exhibit precisely the same colour in all persons, but generally bear a certain relation in hue to the tint of the skin and the hair, being lighter in those of a fair complexion and light hair, and of a deeper shade in the brunette with dark hair.

With regard to the sclerotic, we cannot learn much in its normal condition, from the use of the ophthalmoscope; its internal surface being concealed from view by the retina and choroid.

And now it may be asked, what is the practical bearing of these details, and how far is the ophthalmoscope of value in the diagnosis of diseases of the eye. I have no intention of entering upon this question at present at any length, or of detailing the various changes which have been observed by the ophthalmoscope, in the deep structures of the eye-ball as the result of disease. In doing so, I could merely repeat the descriptions of others, which personal experience has as yet very partially enabled me either to verify or dissent from. Suffice it to say, that the instrument has been successfully used by others in the investigation of the crystalline lens in the early stages of cataract, and in the various diseases, inflammatory or otherwise, which affect the tissue of the retina, choroid, and vitreous humour, structures which have hitherto lain almost hidden from our view, but are now by the "Ithuriel Spear" of the ophthalmoscope made to start from their dark recesses, and display their natural form and condition, whether of health or disease.—*Liverpool Medico-Chirug. Journal, Jan.* 1859, *p.* 52.

128.—ON THE OPHTHALMOSCOPIC APPEARANCE OF THE NORMAL EYE.

By Dr. J. G. Hildige.

Whether the eye be examined in the upright or inverted image it requires a considerable amount of practice and tact to enable one to observe minutely the different internal parts, without causing uneasiness to the patient.

All eyes are not examined by the beginner with the same facility. In a normal eye the retinal vessels and optic papilla are more readily seen than in a presbyopic one, and in an eye that is myopic they are more easily examined than in either. The reason of this is obvious: the rays of light from a myopic eye are more convergent than those from a normal or presbyopic one; so that the examiner can, in most cases, distinguish the internal parts in the inverted image, without the aid of a convex lens.

In order to examine an eye with the ophthalmoscope, the lamp should be placed slightly behind and on a level with the eye that is to be examined; the examiner should be seated a little higher than the patient. If it be the right eye that is to be examined, the patient must look at the right temple of the examiner, in order that the optic papilla, which is placed slightly to the internal side of the centre of vision, may be brought to view. The colour of the ground of the eye, when viewed with the ophthalmoscope, is generally described as an orange yellow. This, however, depends to a very great extent on the kind of light that is employed, as, for instance, when examined by daylight it is of a sapphire blue colour, and when an oil lamp or gas is used, it is of a brownish orange colour; and this refers to the eye of the rabbit, fowl, and frog, as well as to the human eye. The intensity of this reflection varies however in different subjects; in the south of Italy, for instance, where the inhabitants are, generally speaking, of a dark complexion, the ground of the eye presents a much deeper tinge than that observed among the greater number of people in Austria and Prussia, who, as is well known, are fair. This colour is not however equal over the whole of the internal surface of the eye; the parts bordering on the entrance of the optic nerve are much darker, owing to the greater quantity of pigment in this situation. It is also apparently much darker in the neighbourhood of the macula lutea, but this is caused by the reflection from the cornea, and it vanishes completely when the light is reflected obliquely into the eye.

The optic papilla (so named on account of its apparent projection from the level of the ground of the eye) when examined in the inverted image, appears generally about a quarter of an inch in diameter, and is of a greyish yellow colour. The arteria centralis retina, and its accompanying vein, are seen in the centre of it; the artery is small, of a pale colour, and internal to the vein, which is much larger, and of a reddish brown colour. Their branches are tolerably regular —one going upwards, another downwards, and a third outwards. A branch of the vein accompanies each branch of the artery. The form of the optic papilla is circular, and its edges are well defined. In some cases I have observed its external boundary much better developed than the internal; and this was not a pathological condition, for vision was not at all impaired. In the rabbit, the optic papilla appears excavated, instead of convex, and this is the case in various other animals.

The retina, in the healthy state, is not visible with the ophthalmoscope, and its situation can only be inferred from the course of its vessels. When these are examined attentively, they appear as standing out from, and anterior to, the ground of the eye, or as Jäger says, they appear as if drawn on glass. They commence their bifurcations in the centre of the optic papilla, and proceed, dividing dichotomously, until they arrive in the neighbourhood of the macula lutea, where they become so fine that it is impossible to follow them. I have never been able to detect pulsation in them in the healthy state, but when pressure is made on the eye, or when exudation is formed in the retina, resulting from diabetes, Bright's disease, or the glaucomatic process, it is of frequent occurrence. The arteries run a less zigzag course, and their *contour* is much darker than their centre; the veins on the other hand are much broader, darker, and not so sharply defined. The capillary vessels of the retina cannot, of course, be seen in their normal state; but in cases of chronic inflammation of this membrane, they are seen covering the whole of it with a species of net work, which is better defined in the neighbourhood of the optic nerve than elsewhere. About the centre of the retina, in the direct axis of vision, is situated the macula lutea; it is about two lines distant from the optic papilla, placed a little lower than it, and is the most difficult part of the internal eye to examine, on account of the light being reflected directly into the eye, which causes the pupil to contract more than when it is reflected obliquely, as when the optic papilla is examined. It is of a slightly yellowish tinge, and is surrounded by the vessels of the retina, which gradually dwindle into fine hair-like vessels as they approach it. The so-called foramen ovale is situated in its centre, and in the dead body a small hole is generally observed in this situation, the result of maceration. When an eye is dissected, a transverse fold, mentioned by almost all anatomists, is found on a level with the macula lutea. This has never been discovered by the ophthalmoscope, which leads one to believe with Rosas and Dalrymple, that it is merely a *post-mortem* appearance, owing to the breaking down of the globe of the eye.

The vessels of the choriordea are also invisible in the healthy state, on account of their being covered with a layer of pigment; but in the pathological state, when this pigment has been destroyed, or when choriorditis is present, they appear like a number of broad yellowish-white bands, which generally run in a semicircular course. The pigment of the stroma of the choriordea can then also be seen, of a greyish-black or brownish colour, according to the intensity of disease. Of the internal layer of vessels, called the choriocapillaris, or by Ruysch, jun., membrana Ruschiana, nothing whatever can be distinguished. According to Edward Jäger, branches of the deeper layer of vessels can be seen coming up and anastomosing with each other in this situation. The pigment of the stroma of the choriordea presents different appearances in almost every subject. Sometimes it is collected in the interspace between the vessels of the outward layer, and sometimes it appears wanting altogether. It is occasionally heaped up in such a manner that it not only completely fills up the interspace between the external layer of vessels, but also covers their surface, and makes them more or less difficult to distinguish. The internal pigment layer, on the contrary, presents very little difference in grown-up people. In children, however, it generally presents a remarkably clear and transparent appearance, so that the vessels of the choriordea sometimes shine through.

With regard to the mode of examination, the upright image should be selected when merely a portion of the ground of the eye is to be examined ; on the other hand, when a comprehensive glance of the whole of the internal eye is desired, the inverted image is preferable.

Each mode of examination has its difficulties, and requires considerable application before one can become perfect in the use of the instrument ; time and perseverance, however, generally accomplish all that is to be desired in this particular.—*Dublin Hosp. Gaz., Nov.* 15, 1858, *p.* 347.

129.—USES OF THE OPHTHALMOSCOPE.

Neither the stethoscope nor the ophthalmoscope afford exceptions to the Socratic maxim, "Good things are hard." To the successful employment of either instrument a special and extended training is needful. The committee of the Moorfields Hospital have most zealously co-operated with their Surgical staff in providing the means for the successful study and teaching of the ophthalmoscope. At first a single small room was fitted up for the purpose; but this being found insufficient, a large room provided with partitions was built. In this there is now every convenience for seven persons to work simultaneously. Let us briefly enumerate some of the gains to the practice of our art which have already accrued from this instrument. *a.* It will enable the merest tyro to pronounce positively as to existence or non-existence of cataract—a feat which, in certain peculiar cases, used formerly to baffle the best-trained observers. *b.* It makes easily evident the very first beginnings of cataract at a period long before the opacity is discoverable by the unassisted eye. *c.* It reveals in cases of true glaucoma the existence of a cup-like depression of the optic entrance, a sign of the greatest importance as to showing a morbid degree of intraocular pressure, and indicating the necessity for iridectomy. *d.* It affords a clear demonstration of the physical cause of muscæ, and sweeps aside the old notions about varicose vessels in the choroid, &c. *e.* In affording indisputable proof of the dependence of many cases of what used to be classed as amaurosis on retinal apoplexy, or punctate extravasations of blood into the retina (a sort of purpura of the retina), it saves the surgeon from the risk of the serious error of prescribing mercurials and antiphlogistics to patients already suffering severely from humoral dyscrasia. *f.* In another class of cases it exhibits to the observer, in the clearest manner, the existence of limited effusions of lymph, in the deep structures of the eye, such effusions requiring for their removal immediate resort to mercurial treatment. *g.* In yet other cases in which with amaurotic symptoms of the most serious kind, the surgeon might have felt bound to attempt something even without a certain knowledge of their pathology, it will show the retina already detached and disorganised, and demonstrate the uselessness of treatment. We might very lengthily extend this list of the triumphs of this instrument; but enough has been said to prove that it must henceforth take equal rank in its own department with the stethoscope in diseases of the chest; and that before long a medical education which has not included its use will be held to be very imperfect.—*Med. Times and Gazette, Jan.* 1, 1859, *p.* 11.

130.—ON EXCISION OF THE EYEBALL.

By Dr. Bader, Curator and Registrar to the Royal London Ophthalmic Hospital.

The instruments, &c., used for excision, are a wire speculum, a strabismus hook and scissors, a curved pair of scissors, and a forceps. Mr. Dixon uses the curved scissors and forceps only, which shortens the operation.

The operation of excision is rendered somewhat difficult,

When the eyeball has become altered in shape,—

The sclerotic behind the ocular insertion of the recti becomes uneven, furrowed, its longitudinal axis shortened, and its surface not unfrequently adherent to the soft parts, which surround it. This change is not uncommon in eyes which have been lost by injury.

In one case the palpebral aperture had to be enlarged in order to remove a small uneven stump from its surrounding adhesions. The injury had occurred twenty-three years previously in this case.

The eyes, which were enlarged anteriorly, have in no instance offered material difficulties to the present mode of excision; but it occasionally happens that some posterior portion of the walls of the globe, which is not seen, has become staphylomatous (frequently between the ocular insertion of the obliqui), or that, by some change in the sclerotic, choroid, &c., round the optic nerve, thinning of these coats has occurred, which, in consequence of the pressure of the recti, gives the globe an egg-shaped appearance. The projecting portions may be cut into when the optic nerve should be divided, and as the vitreous space is generally occupied by fluid, it may escape by the posterior aperture, and excision of the collapsed globe becomes tedious.

Posterior staphylomata may be suspected in anteriorly enlarged staphylomatous globes of long standing. The egg-shaped globe is observed in short-sighted persons.

The sclerotic of acutely inflamed globes (pus in the vitreous space) after an injury or during rapid development of cancer, within the eye, is covered by inflammatory products, and the soft parts surrounding the globle are matted together, infiltrated, and adherent to the latter. In one case of cancer the anterior portion of the eye appeared smooth, and in a similar position to that of the fellow eye; but the sclerotic had been perforated near the yellow spot, and the obliqui and soft parts round the optic nerve were infiltrated, &c.

When the optic nerve is cupped.—

As in glaucoma, and in some diseases of the vitreous space, with general enlargement of the globe. The cup, in the nervous substance, sometimes extends in depth to a level with the sclerotic, and, if the optic nerve is divided close to the globe, it gives way, and allows the contents of the vitreous space to escape.

The globe has also been seen to give way during the operation of excision, and the contents of the globe escape through an ulcer in the cornea.

The bleeding after the operation soon subsides; the palpebræ are kept open with the wire speculum. A stream of cold water is allowed to run into the cavity and over the conjunctiva, as long as the blood oozes out (from five to fifteen minutes,) when the speculum is removed.

It happened in one case, that after the optic nerve had been divided, the speculum slipped out, and in an instant such a quantity of blood was poured out into the subconjunctival tissue, that it prevented the lids closing. The blood had disappeared after two days.

Mr. Bowman and Mr. Crichett sometimes close the conjunctival aperture by a thread, which is several times passed in and out round the margin of the aperture, and drawn together, when all the bleeding has ceased (and this is sometimes troublesome when the effect of the chloroform has subsided). The thread is generally removed on the third day.

In a few cases a small granulation appeared some weeks after excision, in the conjunctival aperture; it was removed with scissors.—*Ophthalmic Hospital Reports, Jan.* 1859, *p.* 300.

131.—ON CATARACT IN ASSOCIATION WITH DIABETES.

By J. F. France, Esq., Surgeon to the Eye Infirmary, Guy's Hospital.

[This subject has been but cursorily alluded to by authors hitherto. Mr. France commences by detailing three interesting cases, in which cataract appeared, in two during treatment for the saccharine disease. In one, the opacity was principally, but not exclusively, seated in the deeper strata of the crystalline on each side. In this case a surgeon had broken up the cataract by a needle introduced through the sclerotic, but the iris became immediately adherent, and the pupil contracted and blocked up. In one of the other two cases, (both of which were peculiarly large and soft cataracts), Mr. France, himself, performed keratonyxis, but the corneal puncture remained unhealed for a long time, the aqueous humor draining away as soon as secreted; though no active inflammation was excited, still the issue was negative, no improvement of vision resulting. The author continues,]

The last case I have to narrate, in illustration of the present subject, occurred among my own out-patients at Guy's. The existence of the parent disease, diabetes, was not intimated by the patient; it was only ascertained upon special inquiry, prompted by the resemblance which struck me, between the aspect of the cataracts in this individual and that presented by the cases of the same complication which I had previously witnessed. The woman merely applied for relief to her failing sight; but upon the verification of my suspicion, the following account was kindly taken by our late house-surgeon, Mr. McDougal:—

Martha A., aged 30, a print colourer, of fair complexion, residing in Walworth, became an out-patient, under the care of Mr. France, on the 19th of June, 1857. She was married; had had four children, and had habitually enjoyed moderately good health, with the exception of occasional attacks of rheumatism. Her family were in general healthy, and there was no evidence of a syphilitic taint. About four years previously to her application at Guy's, and three months after the birth of her last child, she had had rheumatic fever, and subsequently began to suffer from extreme languor and debility, feverishness, pain in the back, cramp in the legs, and swelling of the lower extremities.

She was troubled with an abundant secretion of urine, and frequent micturition; her appetite and thirst became inordinate, and the former perverted. About eighteen months before admission the catamenia ceased entirely; and the cutaneous surface, which had usually been moist and perspirable, now became continuously dry and parched. The thirst and voracity of appetite increased; her tongue became arid and cracked, the fauces dry, the teeth were gradually eroded and broke off; she suffered from palpitation and faintings; her bowels became excessively costive, and the stools scybalous and black. The urine grew still more copious; was pale and frothy when first passed, and after a while deposited a thick, white, sticky sediment, which encrusted the utensil, the orifice of the meatus, and the adjacent parts.

About four months before applying at Guy's, she first perceived impairment of the sight of the right eye, and in a short time vision became completely extinguished. Two months afterwards the left eye began to suffer in the same manner, and soon was also blind. On presenting herself at the hospital, she was only able to appreciate light and passing shadows with either. On examination, the tunics of the eyes were found healthy; but the aqueous chambers were rendered shallow in consequence of the irides being pressed towards the cornea by large, soft, lenticular cataracts, which occupied the entire area of the pupillary apertures.

The urine was pale, frothy, copious, without any particularly sweet odour; but proved to contain a large amount of saccharine matter, on the application of both Moore's and Trommer's tests. Its specific gravity was 1040. This patient, perhaps discouraged by overhearing her condition spoken of unfavourably, did not continue her attendance at the hospital.

I shall add but few remarks to the foregoing cases. There can, apparently, exist no doubt as to the dependence of the cataracts upon the diabetic malady; in fact, the occasional connection between the two diseases has been observed before. But why the connection, if real, as I believe, and not a mere coincidence, is so seldom comparatively exemplified; and what is its nature—beyond the mere general statement that it has relation to the nutritive function, which throughout the body is affected in diabetes—I am not prepared to explain. It may be observed, however, that this complication is probably of more frequent occurrence than is suspected; and that the few illustrations, which, having noted circumstantially, I have been in a position to relate in this paper, are not (unless my memory deceives me) all which have fallen within the scope of my own individual experience.

This brings me to speak of the characters which the cases in question have displayed. and which have been sufficiently uniform to enable me to recognize the last instance as one of their category, before any complaint of urinary disorder was preferred by the patient. The cataracts have in every example been symmetrically developed on both sides; the lenses have increased remarkably in their antero-posterior diameter, so as to encroach upon the depth of the anterior chamber, and even to interfere mechanically with the free play of the iris. The opacity has attacked portions of several strata of the crystalline at once, leaving intermediate spaces for a while transparent. The colour and bulk of the cataracts have invariably indicated their soft consistence, which was proved by operation in two persons, though respectively of "middle" and of forty-eight years of age. Lastly, the ocular affection has only arisen after a considerable duration of the renal malady (a circumstance which may tend in some degree to account for the comparative rarity of their union); and there has, in no case, been reason to suspect further disease of the eye-ball.

In conclusion, I must advert to the proper treatment of this class of cases. My experience would lead me strenuously to deprecate any operative interference with them, so long as a useful degree of vision is preserved; and to adhere to palliative treatment by mydriatics for a longer time, than in ordinary cases of cataract would be expedient or right. This recommendation is chiefly founded on the indisposition of the cornea to heal even the minute wound inflicted by a needle, as illustrated by the first of the above examples. A period, however, arrives, when all useful vision is extinguished; and then, unless the general powers are rapidly failing, there can be no doubt of the duty of attempting to afford relief. Depression (if not on other grounds to be discountenanced) would be clearly inapplicable here, as indicated by the uniform signs of softness, and as established by the second case, wherein the needle, introduced to effect this operation, passed smoothly through the very centre of the cataract. Extraction, even linear, is forbidden; for the reason just assigned against early operation, if the evidence afforded by Case 1 is entitled to any weight.

There remain therefore, only the varieties of the operation for solution available, and I should have no hesitation in again selecting keratonyxis by preference to any other mode. In performing it, the surgeon should be more than usually scrupulous, to employ a needle of the greatest delicacy; to make sure that the shaft will completely fill the aperture made by the point; to confine his first manipulations to a narrow area in the the centre of the capsule; to effect his purpose at that spot steadily, in as brief a time as may be; and carefully to withdraw the needle, with the flat surfaces of its point as they were introduced, parallel with the plane of the iris, and thus to avoid the minute crucial wound otherwise necessarily inflicted. The neglect of these precautions, by permitting escape of the aqueous humor, would probably render the whole process abortive. Had they been fully observed in the first case narrated above, its issue might have been different; but they were not at that time recognized by surgeons as essential in a well executed operation on an ordinary case; nor, of course, in one of the particular class we are considering. When, however, the diminution in the normal quantity of the aqueous solvent—demonstrated by the advance of the iris towards the cornea; the pressure to which that remaining quantity is subjected; and the doubt, whether an external communication with the chamber, once opened to the humor, will ever be sealed against it by the healing process, are regarded by the light which the case just alluded to affords; the extreme, the vital importance of these minutiæ, under similar circumstances, becomes at once apparent.—*Ophthalmic Hospital Reports, Jan.* 1859, *p.* 276.

132.—RECLINATION OF CATARACT.

By J. Vose Solomon, Esq.

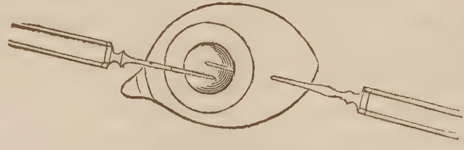
The permanent results of "Reclination" are most favourable in cases where the eyeball is normally of large size, and the cataract at the time of operation of mixed consistence—a hard nucleus enveloped by soft lens matter.

This kind of cataract, it will be remembered, presents a broad edge and a deep antero-posterior diameter, being in close contact with the ciliary body, and the iris, to which its capsule is not unfrequently adherent, it obliterates the posterior, and in some instances encroaches upon the anterior chamber.

With this disposition of the parts the passage of a needle (entered through the sclerotic), over the rim of the lens to the centre of the pupil, with a view to the performance of depression, is a patience-trying and difficult manipulation, inasmuch as the blade of the instrument is very apt to split the lens or ciliary body, or to get caught under the capsule of the lens, or in the tissue of the iris.

But it was not until I had dissected the eyes of a patient, upon whom reclination had been performed, that I was induced carefully to consider whether the operation might not be so conducted that the surgeon should not, by any possibility, suffer embarrassment, or the patient inflammatory consequences, from the occurrence of the accidents to which allusion has been made.

My reflections led me to the conclusion that the desired object would be attained by pressing back the outer and lower side of the lens from the iris with a fine needle passed through the nasal side of the cornea, thus making a free space for the sclerotic needle to pass to the front of the cataract.



Some other advantages also suggested themselves as likely to accrue from the employment of two needles, namely, an increased facility in the removal of the soft lens matter previous to the depression of the more solid portion, protection of the iris from contusion, and an effectual obstacle, during the operation, to the dislocation of the cataract into the anterior chamber.

In not one of these anticipations was I disappointed when I put the plan to the test of experience upon the living object; but, moreover, it then became apparent to me that the lens was more easily and methodically reclined, and was capable of being placed with greater exactness in the outer and lower fourth of the vitreous humour than in cases where I had used only one needle.—*Ophthalmic Hosp. Reports, Oct.* 1858, *p.* 219.

133.—ON IRIDDESIS: OR, THE FORMATION OF ARTIFICIAL PUPIL BY TYING THE IRIS.

By J. Critchett, Esq.

[Mr. Critchett recommends an ingenious improvement in making an artificial pupil—rendering the pupillary opening more certain and defined. In the usual method the circular fibres of the natural pupil are frequently considerably injured, and a pupil is made which is too large and irregular, often extending to the margin of the cornea. Mr. Critchett remarks:]

A consideration of the disadvantages attending the usual modes of operating for artificial pupil makes it obvious that it is desirable to produce a prolapse of the marginal or ciliary part of the iris, and thus to gain the power of altering the shape and size of the natural pupil in any direction, and to any degree that the specialities of the case may need. Up to the present time this object has been attended with insurmountable difficulties. If an opening in the cornea is made and a portion of the iris drawn out so as to form a small prolapse, this will almost invariably recede when the aqueous humour is resecreted—if its return is prevented by making the wound larger and removing a small portion of the cornea—the prolapse may then exceed the intended limits, and the transparency and natural curve of the cornea is interfered with. These considerations have suggested to me the idea of placing a piece of fine silk round the prolapsed portion of the iris—an operation to which I propose to apply the term Iriddesis (Ιρις—δεσις.) It is performed in the following manner: The patient, if at all restless, being placed under the influence of chloroform, the wire speculum is inserted, and, with a pair of forceps, a small fold of the conjunctiva close to the cornea is held so as to fix the eye. An opening is then made with a broad needle through the margin of the cornea, *close* to the sclerotic, and just of sufficient size to admit the canula forceps; with it a small portion of the iris, near, but not close to, its ciliary attachment, is seized and drawn out to the extent considered necessary to enlarge the pupil; a piece of fine floss silk, previously tied in a small loop round the canula forceps, is slipped down and carefully tightened around the portion of iris made to prolapse, so as to include and strangulate it. This manœuvre requires a little practice and dexterity, and is best accomplished by holding each end of the silk with a pair of small forceps with broad extremities, bringing them exactly to the place where the knot is to be tied, and then drawing it moderately tight. A single tie is sufficient; the ends are then cut off, and the operation is complete. Little or no irritation usually follows. The small portion of iris included in the ligature speedily shrinks, leaving the little loop of silk, which may be removed from the eye about the second day. This operation has been performed many times by myself, and by my colleagues, Mr. Bowman and Mr. Poland, and the result has been in every respect most satisfactory ; the size, form, and direction of the pupil can be regulated to a nicety ; its mobility is preserved, and the eye speedily recovers from the effects of the operation. It is applicable to numerous groups of cases, including all those in which the natural pupil, or even a part of the natural pupil, is movable, and has a free edge. The simplest class of cases to which this operation is suitable is a central defined opacity of the cornea, in which cases it is only required that the natural pupil should be moved slightly to one side, so as to bring it opposite to a transparent part of the cornea. By tying the iris in such a case the defined edge and the natural contractility of the normal pupil are secured, but if the opacity is very large, and only a small margin of transparent cornea is left, the operation is not applicable. Another class of cases in which this method of proceeding may be employed is a dense opacity of the cornea, the result of penetrating ulcer, with partial adhesion of the pupillary margin of the iris. In these cases the pupil is altered, both in size and shape, to a variable degree, and is drawn behind the corneal opacity, and in this way any useful vision is prevented. I have operated upon several of these cases by the new method, and have found that I could thus regulate the size of the displaced pupil, and preserve intact the circular fibres of the iris. It is comparatively easy when the adhesion is slight, and only a small portion of the original pupil is implicated in the synechia, but when there has been a large penetrating ulcer involving the pupil, and thereby considerably diminishing its size, and sometimes reducing it to a mere slit, the difficulty of obtaining a useful pupil by iriddesis is increased.

I have applied the same method in cases in which it has been desirable that the pupil should be brought close to the margin of the cornea. Instead of drawing out a portion of the iris, and either cutting it off or leaving it in the wound, according to the usual methods, I have tied it, in these cases, close to the margin of the wound in the cornea. This has the twofold advantage of keeping the edges of the artificial pupil secured and clearly defined, not only at the time of the operation, but permanently ; and also of destroying the prolapsed portion of iris, and thereby preventing it from becoming a source of irritation.

I may just mention here that this method of operating has been adopted by friend, Mr. Bowman, in some cases of conical cornea, for the purpose of *converting the pupil into a narrow slit.* It perfectly succeeded in effecting the desired object, and I think it may be safely affirmed that this could not have been efficiently performed in any other way.

The operation that I have endeavoured to describe in this paper has now been performed in twenty-seven cases; in no instance has it been productive of any serious amount of irritation, or failed to effect the desired object in a very perfect and efficient manner, and I venture to express my hope and belief that it will prove a useful addition to ophthalmic surgery.—*Ophthalmic Hospital Reports, Oct.* 1858, *p.* 220.

134.—ON SUPPURATIVE IRITIS.

By Dr. James G. Hildige.

A number of cases of this disease occur, in which, although the most powerful antiphlogistic treatment is employed, it has not the slightest effect in arresting the secretion of pus, which is poured forth in such quantities, that the anterior chamber of the eye may become several times filled in the course of twenty-four hours.

In several cases which I have had an opportunity of observing, paracentesis of the cornea seemed only to increase the rapidity of the secretion, notwithstanding a conjoined powerful antiphlogistic treatment; as, for instance, in a case under the care of Professor Arlt, at Vienna, in which this operation was performed twice in twenty-four hours, the anterior chamber was again nearly half-full of pus ten hours after the second puncturing of the cornea.

In weak, debilitated subjects, who have been already bled, and treated with calomel and nauseants, and whose stomachs have become so irritable that they cannot bear even the simplest food, it is evident that a continuation of the antiphlogistic treatment, as recommended in most of the works of the present day, is altogether out of the question; and although a few cases may eventually recover under it, yet by far the greater number are not benefited in the slightest degree, but even injured by it.

The following case occurred last winter, in Professor Jäger's practice:—A labourer, aged 30, was admitted into the Ophthalmic Hospital, suffering from iritis (non-specific). The treatment employed was the instillation of atropine every two hours into the eye, leeches, and calomel—the latter given in doses of two grains every third hour. Two days after his admission the anterior chamber of the eye was observed to contain a small quantity of pus, the situation of which was influenced by the position of the patient; and, as it increased rapidly, an incision was made in the inferior portion of the cornea, to give exit to it. Twenty-four hours afterwards purulent matter was again observed, the situation of which had, however, changed to the external portion of the anterior chamber. This was caused by the position of the patient, he being placed on his right side. The cornea was again punctured, and the patient was ordered frequent doses of the decoction of seneka, in order to attempt to arrest the suppurative process by causing nausea. After three days, during which period paracentesis of the cornea had been again performed, and emetics and derivatives of various kinds had been administered, the eye presented the following appearance:—The conjunctiva and sub-conjunctival tissue were considerably inflamed and injected, particularly in the immediate neighbourhood of the cornea; the anterior portion of the cornea, including the membrane of Bowman, was more or less opaque, particularly at its inferior portion, where the incision had been made; the internal layers, together with the membrane of Descemet, were also slightly opaque—the latter was studded with small grayish-white spots, about the size of the head of a pin; the anterior chamber had almost totally disappeared, and at the superior and external part of it the iris and cornea were adherent in two separate places. The pupil, which was half-filled by a mass of exudation, was of a triangular form, and immovable; the sight was consequently so impaired that the patient could scarcely distinguish one object from another. Some ten days later he was dismissed from the ward, with instructions to return for the purpose of having an artificial pupil made, which was done some time after. It is consequently evident, judging from this, and other cases which presented exactly similar symptoms, and which terminated in the same manner, that when a depleting treatment has exhausted the patient, without arresting the suppurative process, some other means must be resorted to in order to do so. That we have a powerful and efficacious remedy at our command is certain; and I need only cite one or two of a number of cases which occurred at von Graefe's *clinique*, in Berlin, to show its efficacy.

A young man, aged 22, presented himself, suffering from acute iritis. The usual treatment—consisting of calomel, leeches, and the instillation of atropine four or five times a day into the eye, was prescribed. This treatment was continued for five days, during which time the anterior chamber was twice emptied of its purulent contents, by paracentesis; but, as the secretion of pus continued, all antiphlogistic treatment was stopped notwithstanding the most violent pain in the orbital and frontal regions, and the operation of iridectomy was performed, a very small portion of the iris being excised. The orbital pain ceased within one hour after the operation, and the pus, which had been evacuated during the operation, ceased to accumulate. The only further treatment was the instillation of atropine five or six times daily into the eye; and at the end of fifteen days the patient was discharged, the eye being almost perfectly normal, with the exception of the slight irregularity of the pupil resulting from the operation.

In cases of relapse from specific or non-specific iritis, or where choroiditis (acute) is superadded to this disease, the same operation is attended with excellent results.

The following case of specific suppurative iritis occurred also under my own observation, at the above *clinique*. A woman of the town presented herself, suffering from iritis. The so-called condylomata, or wart-like excrescences of the iris, were present and the case presented all the symptoms of syphilitic iritis. She had been cured of a sore at the orifice of the vagina some weeks previously, and had not taken mercury or any other remedy internally. Under appropriate treatment, the disease had almost completely disappeared, with the exception of slight injection of the conjunctiva and sub-conjunctival tissue; and she was about being dismissed from the hospital, when, on the twelfth day from her admission, the inflammation returned with increased violence, and symptoms of irido-cyclitis and choroiditis manifested themselves. The iridectomy was immediately performed, with the same result as before; and no relapse occurred during a period of three months, part of which time she attended as an extern patient.

In almost all cases of neglected or badly-treated suppurative iritis, we find the eye in such a state, that an artificial pupil must be made, in order to restore vision; whereas, if the operation were performed at an earlier period, the progress of the inflammation would have been arrested, and both patient and physician spared considerable pain and anxiety. I do not mean that this operation should be performed in every case of iritis that tends to turn to the suppurative form, because it is evident, that when only a small quantity of pus is present, and when the disease shows a disposition to yield to an antiphlogistic treatment, it is superfluous; but when the patient has been already subjected to a rigorous depleting treatment, and when paracentesis has been performed once, or at furthest twice, and the pus still shows a tendency to accumulate, the operation should then decidedly be resorted to.

Allowing the disease to relapse into the chronic form is of the greatest danger to the patient; choroiditis and its consequences, exudation and separation of the retina from the choroidea, and, according to Beer, softening of the vitreous humour, are among its most frequent sequelæ. The spindle-shaded pigment cells of the stroma of the iris lose, in all cases of iritis, but particularly in the suppurative form, their shape and colour, and no doubt cause the iris to resist, more or less, the action of its muscles, so that it does not act so rapidly, or to the same extent, as in the healthy eye.

With regard to the source of the matter in the anterior chamber, there is a variety of opinions on the subject. Some eminent oculists, and among them Beer, state that it arises from abscesses in the iris, which burst, and pour their contents into the anterior chamber. Arlt, on the other hand, states that he has never, even in cases of the most intense iritis, seen anything approaching to an abscess of the iris; nor has he even seen a perforation of the same, caused by the suppurative or ulcerative process.

There is the same difference of opinion with regard to the small opacities deposited on the membrane of Descemet. Jüngken describes it as a separate disease, under the name of hydromeningitis; Mackenzie under the name of aqua-capsulitis; and Desmarres as *keratite* *pointilleé.* Arlt, however, states that these point-shaped opacities never occur without iritis being present, and that they are almost always situated on the inferior part of the membrane of Descemet. He therefore asks why, if they are produced by inflammation of this membrane, should they not be situated on the upper portion as well? In a case which I had an opportunity of examining under the microscope, in the laboratory of Professor Brücke, at Vienna, these point-shaped opacities could be almost completely scraped off the membrane of Descemet with the point of a cataract-knife, whilst the membrane itself presented little or no symptoms of having suffered from inflammation.—*Dublin Hosp. Gazette, Oct.* 15, 1858, *p.* 308.

135.—RETINAL APOPLEXY.—CASES AND REMARKS.

(Under the care of Mr. Dixon, at the Royal Ophthalmic Hospital.)

Among the most interesting of the revelations of the ophthalmoscope is the discovery that the extravasation of blood into the structure of the retina is a very common occurrence. This extravasation usually occurs at many different places at once, and mostly in both eyes. Having occurred once, the patient, as with hæmoptysis, cerebral apoplexy, &c., is very likely to have it again. Vision is by no means wholly destroyed even by repeated attacks; and when it chances that no extravasations have taken place into the yellow spot, it is often not much interfered with. A tyro at the examination of eyes thus affected will often be astonished to see little patches of blood dotted all over the retina (perhaps all taken together covering a third or more of its surface), and yet be assured by the patient that his sight remains tolerable. Often when a patch encroaches somewhat on the limbus luteus the patient perceives only parts of objects, as, for instance, the fingers and wrists of a hand held up before him, but not the palm, or the beginning and end of a printed word, but not its middle. More usually, however, in connexion with these extravasations, the sight is simply imperfect for small objects, but sufficient to allow the patient to go about.

A married woman, aged 46, was admitted last week under Mr. Dixon's care, complaining that her sight had suddenly failed her a fortnight ago. She was pale, and much out of health, having only a week ago weaned the last of twins, whom she had nursed for upwards of sixteen months, to her own great detriment. In both eyes the conjunctiva was œdematous and swollen; but there was no apparent congestion. She could not read the largest print, or see the hands on the clock face. Three weeks ago she averred that her sight was perfect, and that she could see to thread a needle with ease. The pupils having been dilated with atropine, the ophthalmoscope was used, and over both retinæ were seen numbers of old and recent ecchymotic patches. The older ones were of irregular forms, quite destitute of colour, and very abruptly margined. Those more recent, which were also much the larger, were red, and had a somewhat fringed appearance at their borders. The state of things was almost exactly similar in the two eyes. In both the margin of the optic entrance was remarkably ill-defined ; indeed, excepting by the convergence of the vessels, the entrances could with difficulty be distinguished. This was probably due to an œdematous state of the parts adjacent, and had most likely occurred simultaneously with the recent failure of sight. There could be but little doubt, from the condition of the white patches, that they were the remains of extravasations of long past date. The woman, had, however, no recollection that her sight had ever before been damaged, but she had, she said, been laid up for a week or two four months ago, with dropsical symptoms and swelling of the eyelids.

The coincidence of retinal apoplexy with albuminous urine has been very frequently noticed, and renal disease must be accounted by far its most common predisponent. It also often occurs in the phthisical. Like all other internal hemorrhages, it is most frequent in cold weather. Dr. Bäder, the Resident Medical officer of the Hospital (to whom we are indebted for much interesting information respecting this important affection), informs us that no fewer than eleven well-marked cases were admitted during the recent fortnight of low temperature. Sometimes it occurs in apparently healthy persons, an instance of which we recorded a fortnight ago. In these comparatively accidental hemorrhages but one eye is usually affected. As a rough rule, whenever a disease is symmetrical in its manifestations, it may be inferred that it is of humoral, or, in other words, of constitutional origin. To this general law retinal apoplexy conforms, and when observed in both eyes, it may almost always be inferred that there is some more serious lesion of the nutritive or excretory functions.

With regard to treatment, it must, of course, vary with the predisposing influence. Diuretics, tonics, stimulants, and mild counter-irritants will usually be requisite, but in some instances a more antiphlogistic plan may be desirable. The prognosis must be guarded but need not be unduly discouraging, since, in some cases, great improvement has been witnessed.—*Med. Times and Gazette, Dec.* 4, 1858, *p.* 575.

136.—THREE CASES OF ANEURISM WITHIN THE ORBIT, TREATED BY LIGATURE OF THE COMMON CAROTID ARTERY.

By Thomas Nunneley, Esq., Senior Surgeon to the Leeds Eye and Ear Infirmary.

In a paper read before the Royal Medical and Chirurgical Society, the author, after mentioning the rarity of the affection, alluded to those few cases which had been recorded, of which four have been brought before this society, and are published in its "Transactions." Two of those cases were, not only the earliest. but amongst the most interesting that have been related, and for a great number of years they stood alone. They are those of Mr. Travers, in the 2nd vol., and of Mr. Dalrymple in the 6th vol. Many years afterwards, Mr. Busk reported a case of his own, and also mentioned another, treated by Mr. Scott, in the 22nd vol. Two cases occurred in Paris in 1839; one to Velpeau, and another to Jobert. Mr. H. Walton has published a case of an infant, in which he operated; and three instances have occurred in America, where Dr. Van Buren operated in a case of traumatic aneurism in the orbit, in a young man, who had also symptoms of fracture of the base of the skull; and Drs. V. Mott and T. R. Wood have each tied the carotid for the cure of integumentary nævus extending into the orbit. There are also three other cases, of doubtful nature, mentioned by Dupuytren, Schmidt, and Frere, one of which, however, if not more, is quite as likely to have been malignant disease as aneurism. As three cases have lately come under the author's observation, in all of which the common carotid artery has been tied, he has thought them not unworthy of being brought under the notice of this society. Since Mr. Travers first declared the disease to be aneurism by anastomosis, it has commonly been so regarded; but from this opinion the author dissents, for the reasons given at the conclusion of the paper.

[The first case occurred in a healthy strong man, the apparent cause being a blow upon the eye, in a drunken midnight fight. At first there was some protrusion of the ball, congestion of the conjunctiva, and dimness of vision, but no pulsation. This, however, became afterwards developed, and it was found that it could be arrested by pressure on the carotid. The artery was tied, and at first with success, but twice, from imprudence on his part, it returned, the first time being checked by venesection and purgation. When last seen, the sight of the eye was lost, but in every other respect, he was perfectly well. In the second case, there was no assignable cause, and the affection had existed many months. The operation was perfectly successful. Some little time after, whilst wheeling a barrow, there was a sudden renewal of some of the symptoms, which, however, a few days rest removed. In the third case, the operation was very difficult, owing to the neck being very short and thick, and a large bronchocele existed. The local symptoms completely ceased on tightening the ligature, but partial paralysis of the opposite side of the body was produced. There was repeated hemorrhage from the wound, and she died on the sixteenth day. The author remarked that the affection differs from aneurism by anastomosis, but that in reality, it may be true aneurism, or false, circumscribed, or diffused aneurism; that it may be either within the orbit, or of the carotid within the cranium, near to the origin of the ophthalmic branch.

Mr. Curling thought the cases brought forward by Mr. Nunneley should not be denominated aneurisms, but pulsating tumours in the orbit.]

Mr. Hulke related a case which came under the care of Mr. Bowman last year. All the capital signs of orbital aneurism were present. The common carotid artery was tied; death ensued; and at the autopsy no aneurism could be found. The patient was a woman, forty years old, of intemperate habits; in a scuffle, she received a blow on the left temple, which stunned her, and she fell. Next day she had severe pain in the left temple, which she referred to a spot one inch above, and in front of, the ear. This lasted a fortnight, and was then replaced by a rushing noise, like the constant beating of an engine. Four months afterwards her sight was troubled when she looked at anything with both eyes, but with either eye singly there was no confusion of vision. A fortnight later the eye became red and prominent; this frightened her, and she applied at the Royal London Ophthalmic Hospital. A loud sibilant bruit was heard over the left temple and eye; and when the stethoscope was placed upon the eye itself, it was perceptibly upheaved by a strong pulsation, which was synchronous with the heart's action. The bruit and the pulsation were at once stopped by compressing the carotid artery. As the symptoms were increasing, the common carotid artery was tied. The patient progressed favourably for several days; then the wound became phagedenic; secondary hemorrhage ensued, and recurred several times after the separation of the ligature; and she sank about three weeks after the operation. At the autopsy, no aneurism or erectile tissue was discovered. The internal carotid artery and its cerebral and ophthalmic branches were carefully traced, and were found quite natural. The ophthalmic vein had a varicose appearance, and seemed larger than natural; but on comparing it with the vein on the opposite side, the enlargement was found to be due to thickening of its walls, and not to increase of its calibre. It was filled by a clot, which was more recent in the branches than in the trunk. The cavernous, circular, transverse. and the petrosal sinuses on the left side contained clots. In the cavernous sinus this was a puriform pulp. A close examination showed that it was not pus, but softened blood-clot. The dura mater covering the sella turcica, the left post-clinoid process, and the sinuses, were congested, and coated with a tenacious film of lymph, which contained bloody points but no vessels. The internal carotid artery and other structures in relation with the cavernous sinus were bathed in an ichorous serum; the tip of the petrous portion of the temporal bone had a brownish colour, and its vascular foramina were enlarged, but the bone was not soft nor carious. The carotid canal was laid open, but no obvious changes were noticed. The pathological changes were inadequate to explain the symptoms which were present in so marked a degree during life; and a case of this kind, Mr. Hulke observed, threw considerable doubt on the reality of some of the cases which have been placed on record.

Mr. France related the case of a woman who had the point of an umbrella thrust into the orbit, producing great swelling, tumefaction, and protrusion of the globe. The pulsations were synchronous with the heart, and an aneurismal bruit was audible. He and his colleagues not being anxious to have recourse to operative treatment, the disease remaining stationary, the patient was kept tranquil, and cold was applied to the part. In a short time the swelling subsided, the pulsation ceased, and the woman returned home comparatively well. In another case, not of so severe a character, but presenting similar symptoms, the patient recovered without any operation. His own opinion was, that unless the disease was distinctly on the increase, so formidable an operation as tying the carotid ought not to be resorted to.—*Lancet, April* 23, 1859, *p.* 415.

137.—THE NEW TREATMENT OF WATERY EYE (EPIPHORA): WITH ILLUSTRATIVE CASES.

By James Vose Solomon, Esq., Surgeon to the Birmingham Eye Infirmary.

The *Seat of Stricture* in the lid-canals has been found, in a few instances, to be near their middle; in by far the greater number, close to the tear-sac. Lower down, a frequent site is at about the point where the latter merges into the nasal duct, also at the terminal extremity of the duct.

The cases that demand much patience on the part of the surgeon, and faith in the new method, are those of adults affected with old standing epiphora, and in whom the lid-canal is strictured close to the sac; the remainder of the excretory apparatus being so much contracted, probably from functional inactivity, that a No. 4 probe, when inserted into the duct, gives the impression of being firmly wedged.

During the eleven years I have been officially connected with the Birmingham Eye Infirmary, two cases only of epiphora, which were referrible to the presence of a nasal-polypus, have come under my care. The symptoms in one of them simulated those of an incipient tear-abscess.

In some of the instances where the sac has suppurated before coming under surgical observation, considerable mischief has been done to the membranous walls of the nasal duct. This condition is discoverable by the freedom with which the probe may be moved backwards and forwards on the floor of the nose. The instrument is not tightly pressed against the brow, as in the healthy subject, but has a tendency to fall forwards. The abscess appears in some cases to soften down and destroy the stricture.

The mere fact, however, of the patient having been able, prior to the occurrence of suppuration, to press the contents of the distended sac into the nostril, is not decisive proof of the absence of stricture.

The treatment by probes passed through a slit punctum and canaliculus affords the means of ascertaining the gradual restoration of the duct to its natural dimensions. (Case 8.)

No *age* is exempted from epiphora. In a young gentleman of nine years, who was recently under my care, it had existed since his birth. I found the left lower canaliculus closely strictured at its sac extremity, which required division with the canula-lancet before a probe could be made to enter the sac.

Dr. Mackenzie considers the congenital affection to be referrible to an imperfect development of the excreting canals—an opinion which derives support from the subsidence of the epiphora, in certain cases, about the age of puberty. The *hereditary* nature of watery eye has not been, I believe, noticed by authors, and is therefore probably of rare occurrence. I am acquainted with a family in which three of five brothers were affected in childhood, and who are still annoyed by it when exposed to the wind, though now past the meridian of life. One of them has seven sons, five of whom have manifested a similar disorder of the excreting tear-functions.

Treatment.—The surgical expedients that have been devised for the relief of epiphora are numerous, and evince much ingenuity. Those that have proved the most beneficial are based upon the principle of mechanical dilatation ; some likewise affording relief, as Mackenzie and Vidal suggest, by exciting capillary attraction. In certain methods, the instruments employed have been introduced by the natural, in others by artificial openings.

J. L. Petit was, I believe, the surgeon who first devised the plan of opening the sac through the integument which covers it, and then inserting a wax bougie into the duct.

Beer gradually dilated the duct with cargut bougies, of various sizes, which he introduced after the manner of J. L. Petit ; but, when a tear-fistula existed, he availed himself of it, enlarging the aperture when it was necessary, as a means of ingress. As soon as the passages were believed to be free, the bougie was withdrawn, and measures taken to heal the wound. The chief objections to this plan are, that it treats a part only of the excreting apparatus; in the event of failure, it obliges the infliction of a fresh wound (*i.e.*, supposing the surgeon has succeeded in closing the first one, which was prone to become fistulous), with a repetition of the whole process *ab initio:* moreover, it is by no means easy, as I know from experience, to hit upon the direction of a much contorted canal, when the probe is introduced from the outside of the lid. It embodies, however, a very important principle—gradual dilatation of the stricture, when such existed in the path along which the bougie travelled.

The methods of Petit and Beer, there can be no doubt, suggested the employment of the silver nail-headed style. The inconveniences attendant upon it have been represented by Mr. Bowman and others; and, as he graphically describes some of the ill consequences which had led me, previously to an acquaintance with his method of treating lacrymal obstructions, to almost entirely abandon the use of the style among the labouring poor, I quote his words.

"The insertion of a style or tube through an opening made in front of the sac, below the tendo oculi, has been the last and common resource in obstinate cases, where the disease has worn out the patience of the sufferer and the surgeon. It is an expedient so objectionable in itself, as never to be resorted to till the last moment. It is unsightly, especially in females; it is painful, and the patient has constantly to wipe away the discharge escaping by the orifice. The puncture made to admit the style is also frequently followed by the formation of an abscess outside the sac, spreading under the orbicularis muscle, and apt to grow into that serious complication, a sinuous ulcer, for the cure of which, free division, and sometimes excision of the overlying skin, is necessary."

Ponteau ('Mélanges de Chirurgie, p. 109: Lyons, 1760), about a century since, had a young lady under his care to whom, he says, he did not dare to propose an incision in the skin of the lid. In this dilemma, the idea struck him, and he carried it into practice, that the sac might be opened from the inner side of the lower lid, near to the caruncle.

To this ingenious suggestion Lecat supplemented the introduction of a tent or mesh of charpie into the duct, which he conveyed there by means of a small flexible, and eyed probe.

Laforest and Gensoul avoided altogether the use of the knife, and the disfigurement of an external wound, by employing curved sounds, which they introduced at the nasal orifice of the duct.

Gensoul gave particular attention to the form of his instruments, the curves of which he had worked from castings of the passages they were designed to dilate. Were it not that stricture has its seat in parts to which these sounds cannot gain access, their employment would be followed by very good results. The late Mr. Morgan bears favourable testimony to this method in his 'Lectures on Diseases of the Eye.'

Anel first probed the puncta and the tear-canals in their entire length; but his instruments, being only of the diameter of a bristle, are almost ineffective as dilating agents, while their pliability and tendency to get caught in the mucous folds render them very insufficient exponents of the pathological condition of the canals.

A moment's consideration of the preceding methods will lead to the conclusion that each possesses some one or more points of advantage; namely, gradual dilatation of the strictured nasal duct; the entrance of the duct by an invisible aperture; the employment of instruments curved to the normal direction of the duct, and of sufficient strength to force an obstruction.

It was not, however, until near the close of 1857 (November), that a mode of treatment was made known to the profession which combines all the desiderated points above enumerated, and affords some others which they do not possess. The plan to which I allude was originated by my distinguished friend Mr. Bowman: it consists in the slitting up of the punctum and its canaliculus as far as the caruncle, thus allowing of a probe one-twentieth of an inch in diameter to be passed along the remaining part of the lid-canal into the sac, and down the duct to its extremity. In this way the whole of the excretory apparatus is commanded. The larger probes are bent near their extremities in such a manner as allow the surgeon to adapt them to the tortuous passages they have to traverse, and to make search, by the rotation of them on their long axes, for the orifice of the nasal duct. All the defects that belonged to Anel's small probes are overcome. Mr. Bowman's instruments are of sufficient size for the efficient dilatation of a stricture, wherever situated; and of sufficient strength to overcome an obstruction when it is dense, and does not yield to a slight force. Their points, being obtuse, are little liable to be caught in the mucous folds.

In addition to the mechanical treatment, which is repeated according to circumstances, Mr. Bowman employs such constitutional and local remedies as the peculiarities of each case may seem to require. He has given a full, and, as I have learned by an experience of some fifty cases, a most careful and accurate account of his mode of treatment and its results, in the first number of the *Ophthalmic Hospital Reports* (London, 1857), to which the reader is referred.

The only departure I have made from the valuable rules laid down by the author of this method is in the mode of dividing the tear punctum and its canal. For this purpose, I use a pair of narrow-bladed scissors, instead of a grooved director and Beer's knife: the former instrument more certainly effects a perpendicular incision; it also gives less pain and alarm to the patient. The punctum should be expanded by the introduction of a probe or pin before the scissors are used. (*Medical Times and Gazette*, February 20th, 1858.) I may also here mention that, when the brow of the patient is very prominent, the passage of the probe into the sac and nasal duct will be facilitated by proportionately increasing the curve of the instrument. If this be omitted, there is a liability, in some subjects, of the posterior wall of the nasal duct being injured, which retards the progress of the case.

In some few patients where the passages have become free by the treatment, and yet the eye has been more moist than natural, I have slit the upper lid canal; I confess, not very often with decided benefit.

It is advisable in all cases to carefully examine, both before and subsequently to the divisions of the lower canal, whether the punctum or the channel we have made is adapted with sufficient closeness to the globe to draw off the tears into the sac. If such be not the case, and there is thickening of the inner wall of the divided canaliculus—a result of inflammation, which commonly causes a slight eversion—I am in the habit of removing, as suggested by Critchett, a a bit of the inner lip of the channel near to the caruncle.

Case 1. *Epiphora of five years Duration cured in a Day.*—Mrs. C. W., aged 45, a remarkably healthy person, had suffered from a watery eye (left) for five years. The tears ran over on to the cheek, and the conjunctiva of the lid was inflamed. Small print was read with difficulty. On passing a fine probe, of the diameter of a bristle, a stricture was detected in the canaliculus, near to the sac.

On March 31st, 1858, I divided the tear-punctum and canaliculus as far as the caruncle with a pair of sharp-pointed Maunoir's scissors, and probed the canals (left) with No. 6. Since this, the tears have ceased to come upon the cheek, and she now reads small print and threads her needle with ease.

Case 2. *Nine years Epiphora cured in a Month.*—Miss C. D., 50 years of age, had suffered from a collection of tears at the inner corner of the eyes, and on the lower lids, for nine years. During the last two, the discharge from the tear-sac had been, when pressed out, of a gummy consistence. When she came under my care, there was a lake of tears in each eye. For six months, local astringents, and tonics internally, were employed.

March 30th, 1858. The largest size probe (No. 6) was passed through a stricture in the neck of the sac on the right side, and pressed down to the floor of the nose. The instrument was tightly embraced by the walls of the canal. The left canal was also probed (No. 6): the seat of stricture in it was close to the nasal cavity.

In two days the epiphora was much relieved, and in less than a month a cure was effected. I saw this lady in November 1858, and she had not suffered a relapse.

Case 3. *Epiphora of twenty years standing: Cure.*—Mr. B., aged 36, a solicitor, in good health, consulted me on August 22nd, 1858, respecting a tear abscess on the right side, which was at the time in the stage of delitescence. The eye, he said, had watered for twenty years, but had been specially troublesome during the last five.

August 27th. I divided the right lower punctum and its canal as far as the caruncle, and passed a probe (No. 6). The duct, which contained a quantity of inflammatory effects, tightly embraced the probe: it was most narrowed at its lower fourth.

The patient's profession frequently took him from town; hence his attendance was not very regular. Nevertheless, on November 26th, the coldest wind failed to excite epiphora. At this date, the canals had been probed twenty times. The secretion from the sac consisted for some time of a transparent gummy mucus. In addition to the surgical treatment, tonics and a regulated diet were prescribed.

Case 4. *Epiphora may continue for a time, notwithstanding the*

Excreting Apparatus is to a full sized probe normally patent.—Mrs. M., a pale healthy woman, of lax fibre, aged 29, suffered, when nine years old an attack of small-pox, since which her left eye had been affected with an accumulation of tears, which collected at its inner angle, and streamed down the cheek.

A probe was passed through the slit canaliculus, for the first time, on August 31st, 1858; and on its being carried into the nose, the nasal duct was found to be narrower than normal, and much constricted at its lower orifice. By September 21st, a No. 6 probe traversed the whole length of the canals with freedom. No improvement, however, took place in the epiphora till October 15th, when, for the first time, there was a diminution; and on the 22nd, the eye was normally irrigated by the lacrymal secretion. The patient continued under observation for several weeks. No relapse occurred.

Case 5. Epiphora since Birth; Cure: Relapse from continued Crying.—Master C., a delicate fair complexioned boy, 9 years of age, diathetically strumous, had had a collection of tears on the lower and inner corner of the left eye ever since his birth. Pressure upon the sac caused tears and mucus, mingled with a little pus, to escape by the upper punctum.

April 1st. I slit the lower canaliculus with a knife and grooved director; but, in consequence of a dense stricture close to the tear-sac, a probe could not be passed until it was divided by the canula-lancet. This proceeding was obliged to be delayed some little time; hence the upper punctum and canaliculus were divided, and a No. 4 probe passed down to the floor of the nose.

At the end of six weeks treatment with the probes, aided by constitutional remedies, the tears were properly excreted; and, on May 29th, the patient returned to the country cured.

It is worthy of remark, that it was not until both canaliculi were free from stricture, that the slightest apparent progress was made towards recovery.

After the midsummer holidays, the little patient was sent to a boarding school, and, being unhappy, gave way every day to floods of tears, which, by exciting irritation in the excreting passages, reproduced the epiphora. A case has recently come under my care, in whcih weeping proved to be a primary cause of an epiphora followed by tear-abscess.

Case 6. Epiphora five years: Tear-Abscesses: An occasional and slight Epiphora continues.—H. L., a widow, 35 years of age, has been subject to a watery eye (right) and flowing of the tears on to the cheek for the last five years. In February 1858, an abscess formed in the tear-sac, which discharged itself through an opening in the skin of the lid, near to the inner canthus. She says "it gathered up and broke every four or five days."

April 13th. I slit the lid canal with scissors: at the time there was a copious muco-purulent secretion discharged through a fistula in the integements covering the sac, which were inflamed and tumid. After a good deal of trouble, a probe was passed into the nasal duct, which which was found to be contracted and blocked up with lymph, &c. The probing was repeated twice a week, and the fistula occasionally cauterized. At the expiration of a month, my notes state that the fistula is healed ; the cutaneous inflammation has subsided ; epiphora much diminished.

May 25th. The epiphora was slight, and only of occasional occurrence.

The patient was kept under observation for four or five months, the excreting canals doing their duty all but perfectly. A tear every now and then appeared at the corner. The duct was quite free, except at its nasal extremity, where it continued more contracted than natural.

For the relief of a chronic inflammation of the Schneiderian membrane, iodide of potassium and Plummer's pills were given with good effect. It did not, however, entirely subside, being associated, as I thought, with a specific taint.

Case 8. *Epiphora : Distension of Tear-Sac : Cure.*—Mrs. B., aged 50, constitutionally healthy, had had a watery eye (the right) for four years. The discharge ceased spontaneously, and did not return for twelve months. In February 1858, it was reproduced by an attack of erysipelas (tear-abscess), which commenced at the inner corner of the weak eye.

November 12th. She came under my care at the Eye Infirmary. At this time, the sac was prominent on pressure, and a mucopurulent secretion regurgitated through the lower punctum. I performed the usual operation, and passed the largest sized probe. The examination revealed a slight stricture of the lid-canal near to the sac, and a general narrowing of the nasal duct.

The probe was passed two or three times a week ; and on December 31st, the disease was perfectly cured, the eye being dry, and the excreting canals of their normal diameters.—*Brit. Med. Journal, March* 12, 1859, *p.* 206.

138.—ON DACRYOPS OR LACRYMAL CYSTS, AND TRUE LACRYMAL FISTULA.

By J. W. Hulke, Esq., Assistant-Surgeon to the Moorfields Ophthalmic Hospital.

[Cysts occasionally, but rarely, occur in the upper eyelid, in connection with the excretory ducts of the lacrymal gland, and sometimes complicated by fistulous openings upon the cutaneous surface of the lid towards its temporal angle. These were described by Dr. Schmidt of Vienna in 1803, and called by him dacryops, and subsequently mentioned by Beer in 1817. Since then the affection has been mentioned in most of the larger systemic works on diseases of the eye ; but few authors seem to have written from a personal acquaintance with the subject.]

Dacryops commences as a small cystic tumour, first noticed in the upper and outer part of the upper eyelid. The skin glides freely over it, but the tumour extends backwards beneath the border of the orbit towards the lacrymal gland. If the lid be drawn up on to the brow, and pressure be simultaneously applied in a downward and inward direction, a tense, elastic, fluctuating swelling instantly starts out between the eyeball and the inner surface of the eyelid. So long as the cyst is small the natural movements of the eyeball are unrestricted; but when it has attained a large size, and especially if it has reached backwards beneath the margin of the orbit, it hinders the movements of the globe, and may even cause its protrusion. The most characteristic and striking sign of dacryops is the sudden enlargement which the tumour undergoes when the patient cries. An attempt to extirpate such a tumour with the knife will generally fail, because the cyst is so delicate that it is hardly possible to dissect it away entirely, and if the wound should heal a tumour soon forms again. More frequently the wound does not perfectly heal, but a very minute fistulous aperture remains permanently open in the skin of the eyelid, from which the limpid secretion of the lacrymal gland continually oozes drop by drop. In this case the cyst causes little or no swelling in the lid, because the tears escape freely and do not distend it.

Lacrymal cysts are most commonly a consequence of mismanaged abscess, or of neglected wounds, attended by prolonged suppuration in the upper eyelid. The first step in their formation is the obstruction of one or more of the excretory ducts of the lacrymal gland, either at the external orifices in the upper sulcus of the conjunctiva, or at some other point nearer the gland. The escape of the tears being prevented, they accumulate and distend that portion of the duct above the obstructed point, in connection with the lacrymal gland. But these cysts have not invariably a traumatic origin; they are sometimes congenital. Schmidt took this view of two cases which came under his notice. He imagined that, by a congenital malformation, some of the excretory ducts terminated in the cellular tissue of the upper eyelid; that the secretion of the lacrymal gland was poured into the interstices and formed a kind of cyst by distending one or more such space which, as it enlarged, acquired a capsule by the condensation of the surrounding cellular tissue. Thus the formation of lacrymal cysts has been explained in two ways: one is by the uniform distension and dilatation of an excretory duct; the other by the distension and expansion of the interstices of the cellular tissue. But whatever their origin may be, it has no practical bearing on the treatment; and it is very important to bear in mind that, if these cysts be opened through the skin, a permanent fistula will probably result, and this may become the most prominent symptom, especially if the escape of the tears allows the cyst to collapse.

The successful treatment of dacryops, with or without fistula, depends on the artificial formation of a permanent opening for the escape of the tears on the inner surface of the upper eyelid; and when this has been accomplished the closure of the fistulous orifice on the skin can be attained without difficulty.

Case 1. *Dacryops fistulosus.*—Caroline Bewley, aged 27, a glove maker, applied to Mr. Bowman, at the Moorfields Hospital, May 25th, 1856, on account of a troublesome trickling of tears from a small hole in the skin of the upper lid of her left eye. Her mother had previously brought her to the hospital, when she was a child of nine years old, with a swelling in the upper eyelid, which was, at first, said to be a tumour; but it afterwards suppurated, was lanced, and a hard body, resembling a plumstone in form and size, was removed from it. The wound did not completely heal, and from that time tears have always oozed from a minute aperture in the skin of the lid; they ceased to flow for a short time eight years before she came under Mr. Bowman's care. This cessation was followed by an abscess in the upper eyelid, and both the eyelids became so greatly swollen as completely to hide the eye itself. When the abscess broke, all the swelling of the lids subsided, but the fistula reappeared, and tears trickled from it as before. When she came to the hospital in 1856, I made the following memorandum of her condition at that time:—

"In the skin of the upper eyelid of the left eye, near the outer end of the lid, and at about one-eighth of an inch from its free border, there is a small orifice in the skin, from which a colourless limpid fluid continually oozes drop by drop and trickles down her cheek. It has a faint alkaline reaction, perfectly resembles tears, and does not excoriate the parts over which it flows. The aperture just allows the introduction of a fine probe, which can be passed for about half an inch upwards towards the lacrymal gland, and a careful examination shows that the fistula communicates with a cyst which occupies the outer half of the upper eyelid, but being collapsed does not cause any swelling. The cornea has its natural brightness; there is not any redness of the conjunctiva, nor does she complain of any sensation of dryness in the eye."

The connection of this cyst with the excretory ducts of the lacrymal gland could not be doubted, and it immediately became apparent that some provision must be made for the escape of the tears on the inner surface of the lid before the closure of the orifice in the skin could be undertaken with success. This was accomplished with a seton in the following manner:—

A single thread of silk was armed with a needle at each end, and one of the needles was introduced into the fistulous orifice in the skin on the outer surface of the eyelid, and carried for a short distance upwards; it was then made to pierce the fibrocartilage of the lid and the conjunctiva, and the thread was drawn out at the inner surface of the lid. A similar manœuvre was repeated with the other needle, and the thread was drawn out at the inner surface of the lid at the distance of a quarter of an inch from the first, and a little nearer the attached border of the lid. In this way the cyst was pierced at two points by the thread which encircled in a loop the small intervening portion of tissue. The two ends of the thread were then brought out at the outer commissure and secured upon the temple with a piece of sticking plaster.

The presence of the thread occasioned very slight annoyance; the conjunctiva, lining the upper eyelid, became a little swollen and injected; and tears continued to flow from the orifice in the skin, but less abundantly. Ten days afterwards the thread was replaced by a thicker one, which produced more irritation, and the conjunctiva immediately around it became slightly granular. An attempt was now made to close the aperture in the skin. It was drawn out with a forceps and cut off with scissors, together with the little piece of skin immediately around it. The fibres of the orbicularis palpebrarum were then seen covering the outer surface of the cyst, which was extremely thin. The edges of the wound were brought together with two serres fines, which were replaced in the evening of the same day by slips of plaster.

When she was next seen, after an interval of four days, the wound had quite healed, and the fistula in the cutaneous surface of the lid had perfectly closed. No tears had accumulated in the cyst, but one week after the operation a small quantity of mucus had collected in it; this could be easily squeezed out by the side of the thread through the opening on the inner surface of the lid. The thread was now withdrawn, and the small bridge of tissue which had been encircled by the loop cut out. This opening in the conjunctiva continued patent, and there was no further collection of mucus, nor of tears in the cyst.

Case 2. *Dacryops.* (Schmidt.)—The patient was a boy. Having raised the upper eyelid, and caused the cyst to protrude between it and the eyeball, Schmidt punctured the cyst with a trocar, and let out half an ounce of fluid, upon which the cyst collapsed; it was then injected with a mixture of spirit of wine and water in the proportion of one to two. Stronger solutions of alcohol, of corrosive sublimate and of nitrate of silver, were afterwards employed. The use of these injections was followed by great pain and redness of the eye, but they failed to destroy the cyst. He then kept the trocar wound open with a tent for a long time; after removing which the wound remained open for a few days, and tears escaped through it, but it soon closed, and the swelling returned.

All further attempts were relinquished, and the boy's parents would not accede to a proposal which Schmidt made to remove a piece of the cyst with the conjunctiva lining the lid above the ligamentum palpebræ superioris, and render the opening callous and permanent by continued dressing.

Case 3. *Dacryops.*—The patient was a girl about 16 years old. Another surgeon, supposing it to be a common cystic tumour, had previously attempted to extirpate it, and the operation, a very protracted one, was followed by convulsions. The cut had been made through the upper lid. The swelling soon returned. During several following months a seton was used, and after it was withdrawn the patient was said to be cured, but the tumour soon reappeared.

The girl was then brought to Schmidt, who proposed to establish a permanent opening on the inner surface of the upper lid, as he intended to have done in the preceding case, but she had been so frightened by the severity of the operation which she had already undergone that she would not submit to another.

Case 4. *Dacryops fistulosus.* (Beer.) *Translation.*.—Once only, in a strong robust peasant, in whom the whole capillary canal was only about one and a half lines deep, and perfectly callous. I made the attempt to introduce a red hot sewing needle quickly to the bottom of the canal, and turn it round a few times on its axis, and indeed, on the fifth day, the inflammation had disappeared, and the capillary canal had perfectly closed. Yet I would by no means offer this single case as a precedent for the treatment of capillary lacrymal fistula, which penetrate more deeply; and, least of all, would I trust such a proceeding in the hands of every surgeon.

Case 5. *Dacryops fistulosus.* (Jarjavay.)—— Louis, aged 45, came under Mr. Jarjavay's notice May 21st, 1850.

On December 6th, 1844, he had been struck with a poignard on the outer part of the right orbital region and cheek. The wound suppurated during several months, and cicatrization was not complete till six months from the date of the injury. From that time a swelling formed in the outer part of the upper eyelid, a tumour from which pressure caused a transparent colourless fluid to spirt out. The lids were distorted, and the palpebral fissure was shortened by union of the lids at the outer angle. Above and to the outer side of the cicatricial commissure there was an oblong swelling of the size and shape of a small almond. It was soft, without any discoloration of the skin, and presented at the upper part a funnel-like pit, at the bottom of which was a narrow aperture, which could not be seen until the folds of the thin skin had been stretched out, and when the eye was open it was entirely concealed by the fold of the skin of the upper eyelid. The conjunctiva was a little red. He said that the swelling became larger when he walked against the wind, and when the secretion of tears was provoked by any other stimulus. In order to empty it he was accustomed to press the tumour with the tip of his finger against the outer border of the orbit. His sight was unimpaired; prickings of the surface of the eye were experienced, and the movements of the globe were embarrassed. Usually he had no other inconvenience than that of being obliged to empty the cyst three or four times a day. It was larger in the morning after the night's rest.

Case 6. *Dacryops fistulosus.* (Jarjavay.)—A piece of a broken glass bottle had hit a woman on the right eye. Both the eyelid and the eyeball were injured; the lid was tied to the globe, and the sight was destroyed. A swelling appeared in the outer part of the injured lid when the patient cried; it could be emptied on the conjunctival surface, by pressure, and not through the skin as in the preceding case.—*Ophthalmic Hospital Reports, Jan.* 1859, *p.* 285.

139.—*Slitting up of the Upper Punctum in Epiphora.*—Mr. Critchett observed to his class, the other day, at the Ophthalmic Hospital, that in several cases recently he had tried the plan of slitting up the punctum of the upper lid where the wished-for result had not ensued after a similar operation in the lower. In some, the relief to the epiphora had been complete after the second operation. It was clear, he said, that the patency of the lower canal was not always sufficient to secure immunity from this troublesome symptom, and that the upper one had a more important share of duty than, judging from its position, might have been suspected. As a point in practice, this result of Mr. Critchett's experience is well worthy of remembrance.—*Med. Times and Gazette, Oct.* 30, 1858, *p.* 447.

140.—*Treatment of Epiphora and Fistula Lachrymalis.*—The modern treatment of epiphora and obstructions of the lachrymal and nasal ducts is so simple and effectual that it must before long pass to a large extent from the hands of the specialist to those of the general practitioner. It is chiefly to Mr. Bowman that the credit, both of having introduced it and brought it to perfection, is due. Half-a-dozen probes of different sizes, and one of them made of steel (plated) and grooved at one end, and a small sharp-pointed knife are all the instruments needful. The set of probes are now sold in a case by most instrument makers, and a common Beer's knife is the most convenient one. A boy of ten applied the other day among Mr. Dixon's out-patients complaining that his tears very often ran over his cheeks. There was not the slightest redness on the lids, and no trace of ophthalmia. Had it not been for the lad's assertion as to the inconvenience he suffered, no one would have suspected anything amiss with either his eyes or eye-lids. On looking for the lower puncta, it was seen, however, that they were both so minute that they could only be found with difficulty. Mr. Dixon succeeded after some trouble in introducing a very fine probe, on which they were both slit up. The boy was cured. In this case probably the condition had been congenital; but nothing is more common than for tinca tarsi and other slight ophthalmic ailments to leave the punctum much constricted, with overflow of tears as its annoying symptom. In almost all these, relief of the most marked kind and usually permanent may be confidently predicated from the simple operation of slitting up the canals.

In the treatment of fistula lachrymalis and other consequences of obstruction of the nasal duct, the clumsy and ineffectual style has been wholly superseded. The plan is to dilate the stricture. We do not think of making a patient with stricture of the urethra wear a catheter, for the rest of his life; neither is the parallel measure needful in stricture of the nasal duct. The occasional passing of a bougie is all that is usually necessary. To accomplish this no wound in the cheek is needed, it being quite sufficient to gain access to the sac by slitting up the lachrymal canal. The use of the probe passed from the nostril into the nasal duct is not yet adopted at Moorfields.—*Med. Times and Gazette, June* 1, 1859, *p.* 10.

141.—OBSERVATIONS ON STRABISMUS, WITH THE DESCRIPTION OF A NEW METHOD OF OPERATING.

By Dr. John G. S. Coghill, Demonstrator of Anatomy in the University of Glasgow.

Strabismus is very rarely congenital, and seldom hereditary. It generally appears before the third year, and is less frequent after that period. The remote or original causes are very various, but they admit to some extent of classification:—

1. Convulsive and other disorders of the nervous system.
2. Following after or concomitant with exanthematous and other diseases of infancy inducing general debility or disordered innervation, or from other sources of nervous irritation, as worms, dentition, &c.; all equally liable to induce disturbance of the muscular power and action.
3. From habit or imitation.

Although the origin or initiation of strabismus may be referred to the operation of influences so various and remote as those in question, the maintenance of the distortion immediately depends on a morbid condition or relation of the ocular muscles, the exact nature of which is involved in considerable obscurity. The affection is, therefore, essentially a local one, and, as submitted to operation, the cause is also local; and however much the centric influences prevail in its origin, they are communicated to and act through the agency of the muscles. The cause thus becomes localized, and the resulting distortion is maintained by permanent changes which occur in the forms and relations of the muscles, long after the original exciting influence has ceased to exist.

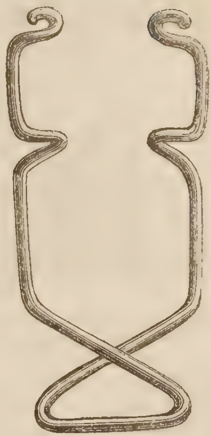
The convergent and divergent varieties of strabismus have been generally sought to be explained by supposing that there was no organic change in the muscles at fault; but that, for instance, the internal or external rectus, as the case might be, was effected with *spasm* or was spasmodically contracted. Now, to suppose that a muscle could be continuously affected with the same degree of spasm, or that the spasm could be transferred alternately to the same muscle in different eyes for a lifetime, is quite opposed to all analogy and observation. Or if, as some of our highest authorities believe, this said condition of the muscles in strabismus exists and depends on central nervous influence, how does section of the faulty muscle of one or both the offending eyes remove, as it certainly does, their distortion? I am inclined to believe that the affection depends originally on a loss of tone in one of the muscles, occurring at a time when the system is debilitated and its innervation deranged—the opponent muscle prevails, the balance of action is disturbed, and when the system recovers tone they are found to have accommodated themselves to their altered proportions by nutritive changes of structure—the one becoming shortened as the other is lengthened—unequal action ensues, and the final result is the distorted ocular movements seen in strabismus. This view is borne out by the effect of section on the shortened muscle itself, and the examination of the subsequent condition and relations of the part. It is found that the divided muscle acquires a new insertion farther back on the globe of the eye, where its influence on the movements of the latter are less; producing thus the same effect as increased length, and giving, at the same time, its previously unequal opponent a mechanical advantage to supplement its deficiency either from its too great length or perhaps from want of corresponding contractile power. Further, we know that after this operation there is always more or less protrusion of the eyeball. Now, if it were only simple contraction of the muscle that caused the distortion, on its division the globe would merely resume its normal or symmetrical degree of protrusion; but this is never the case, and taking the lengthening of the opposing muscle also into consideration, this significant result is most satisfactorily accounted for. There is something peculiar in the circumstance of convergent strabismus being comparatively so very frequent; this is, no doubt, influenced by the fact that convergence of the eyes, or direction of both pupils towards the nose, is the only normal associated movement in which the parallelism of the ocular axes is not maintained; but the peculiar fact to which attention has been drawn by Sir C. Bell may not be without its influence, viz., that the abducens to which the sixth nerve exclusively proceeds, is the only voluntary muscle supplied by a separate nerve, and this nerve is the only motor nerve of the eye which receives a large branch of the sympathetic as it is about to enter the orbit. There may be, however, an apparent difficulty suggested in reconciling the preceding view of the nature of strabismus with the alternating form of the affection.

The corresponding muscle in each eye is evidently affected in such cases, and here the power of alternating the squint, that is, changing it to either eye at will, is effected by exerting the whole force of volition upon the weak or lengthened muscle of each eye singly—the power of volition not being sufficient to act equally upon them both at once—to cause a weak muscle to contract to a certain extent, requiring evidently a greater effort than if its power was normal. In alternating convergent squint, for example, the absolute length of both abducent muscles is too great in proportion to that of the adducents, and therefore a greater effort of will is required to be exerted to shorten them respectively than would otherwise suffice; so great, indeed, as to prevent it being exerted in more than one of them at a time. Hence the alternation.

Having so far discussed the pathological nature of strabismus, I would next proceed to describe the operative measures as at present employed for its removal. To enumerate merely all the modifications and varieties of procedure which have been successively adopted and abandoned, would be a task as tedious as it would be unprofitable. The various phases through which the operation has passed since its introduction, have had the effect of correcting many erroneous views held with respect to the condition of the parts involved, both previous and subsequent to surgical interference, and done much to enable us to act on the basis of a more exact knowledge of their anatomy and pathology. The anatomical relations of the ocular muscles and fasciæ, are of the highest importance in reference to all operative measures for the removal of strabismus. The recti muscles, the voluntary muscles of the eyeball, are now understood to be alone involved in this distortion. The oblique muscles, involuntary in their action, were believed by Cloquet, Dieffenbach, Phillips, Sir C. Bell, and others, to have the power of disturbing the parallelism of the eyes, and therefore occasionally to require division; but the view of Bichat and Cruveilhier that they are simply rotators of the globe on its antero-posterior diameter is now received as correct. They are inserted into the eyeball at its greatest lateral diameter, and consequently can only interfere in the production of strabismus when the parallel relations of the eyes have been disturbed by the other muscles, which will then throw the action of the obliqui out of the equatorial plane of their insertions. In their course, from their attachments to the parietes of the orbit, the muscles perforate and become attached to the fibro-cellular sheath of the eyeball—the *tunica vaginalis oculi*, as originally described by Tenon, and recently more fully by M. Boyer—at a point corresponding to the junction of the posterior and middle thirds of the globe of the eye, and becoming tendinous midway between this point and their insertion anteriorly, end by an expanded tendon between three or four lines from the margin of the cornea. The muscles are covered by a loose membranous expansion from this ocular fascia of Tenon, which connects them with each other, and invests them so as to form for each a sort of tubular sheath. This fibro-cellular structure is more defined deep in the orbit, and ends anteriorly by gradually blending with the sub-conjunctival cellular tissue; and it thus also plays an important part in the suspensory apparatus of the eye.

The methods of operation for strabismus as at present performed, admit of being described under two divisions, viz., by the *open*, or by the *subconjunctival section* of the muscles. The *open section*, or free incision of the conjunctiva previous to the division of the muscle, was the mode always followed till more recently; and to this circumstance in the nature of the operation itself, may be attributed much of the want of success, and the bad consequences formerly attending it. The large wound in the conjunctiva very often became inflamed and suppurated, often extending and involving the entire globe. Other structures concerned in maintaining the eye *in situ* were divided, causing great deformity from its protrusion. The division of the retaining structures was often so free as at once to have the effect of entirely changing the direction of the squint. The large wound generally left a large scar, the subsequent contraction of which might renew the original distortion. Adhesions of the superficial structures to the sclerotic often followed, so extensive as to interfere subsequently with the movement of the eyes. Fungus granulations, or excrescences, frequently grew out of the wound, often causing much trouble in effecting their removal. The *caruncula lachrymalis*, and the *plica semilunaris*, generally became dislocated, often disappearing entirely with the morbid changes produced in the conjunctival membrane. These untoward results have been sought to be obviated more recently by adopting precautions, such as limiting the external opening as much as possible, and subsequently introducing sutures to maintain the relations of the conjunctiva, and so retain the caruncula in its position. The method, as lately described by Mr. Haynes Walton, may be taken as the type of this mode of operating. He makes an incision in the conjunctiva at a point corresponding to the inferior border of the tendon of the muscle to be cut, as near the cornea as possible, passes a blunt hook under it, then introduces the inferior blade of a blunt pointed scissors as far as requisite, and divides the muscle and its overlaying conjunctiva at the same time, and then closes the wound with two silk sutures. Dr. M'Kenzie follows a nearly similar method, with the difference, that he previously divides the conjunctiva over the muscle to an extent corresponding to its breadth.

Many endeavours have been made to avoid the undesirable contingencies of the method of proceeding above described, by substituting for it subconjunctival section of the muscles; the only drawback to which procedure is, the occurrence of occasional failure from incomplete division of the muscle—a result which may be attributed to the imperfect nature of the instruments employed—a difficulty which can only be overcome by great dexterity and practice. Subconjunctival myotomy was proposed by M. Guerin as early as 1840, but did not meet with much attention in this country till revived, with slight modifications, by Mr. C. Brooke in 1843; by Mr. Holthouse in 1845; and Mr. Critchett in 1855. Mr. Holthouse's method consists in dividing the muscle from its sclerotic surface outwards by a small pointed knife, with the blade bent at a slight angle to the shoulder, which is rounded, introduced into an opening in the conjunctiva, made some distance below the inferior border of the muscle. Mr. Brooke uses, in a similar manner, one with a concave cutting edge. Any one who chooses to try this method of operating on one of the lower animals, or on the dead subject, will not, I am sure, try it on the living one. Mr. Critchett thus speaks of such methods:—"Any one who has attempted this operation in this way will agree with me that it is one of extreme difficulty. The loose capsule round the muscle prevents the edge of the knife from acting upon the tendon; neither can the tendon be made sufficiently tense to be thus divided. The difficulty and uncertainty of this operation have resulted in its having been rarely attempted, more rarely accomplished, and never repeated." Mr. Critchett divides with scissors the conjunctiva and subjacent cellular tissue close to the lower margin of the tendon; he then raises the latter on a blunt hook, next introduces a pair of probe pointed scissors, and divides the tendon, by "a succession of small cuts," between the probe and sclerotic. If the tendon is too broad, he makes a counter-opening, and repeats the same process from above. This is rendered necessary from the comparatively large opening required for the employment of scissors, when they have to be introduced even to a very small extent. This must detract very much from the value of this mode of procedure as a subconjunctival operation. This method, however, has great advantage over those of Messrs. Brooke and Holthouse; but still, from the use of scissors rendering a large opening necessary, often a counter-opening, and the usual uncertainty of subconjunctival section, I venture to consider it still imperfect, and capable of improvement. Nearly two years ago I got Mr. Young of Edinburgh to make me a set of instruments for the performance of the operation for strabismus, which are pretty correctly represented in the accompanying wood-cut, and which, I believe, fulfil very closely the indications afforded by the considerations we have just discussed. A is a speculum for keeping the eyelids apart. It is a convenient modification of the original instrument of Pelier. B is a hook for raising the conjunctiva, and fixing the globe in the requisite position. It would be perhaps improved by being less liable to turn with any movement of the eye, were its points more widely apart. C is a blunt hook, with the curve a right angle, slightly flattened laterally of, and with its concavity deeply grooved. D is a concave blunt pointed knife of a larger curve than the hook, so that when the convex back of the knife is within the groove in the hook,



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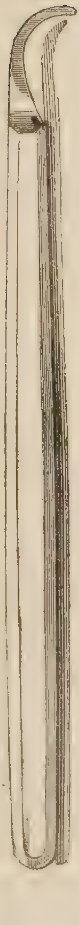

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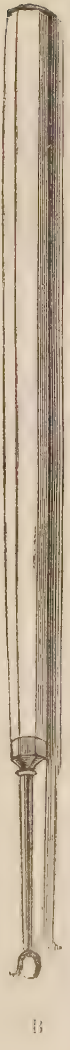

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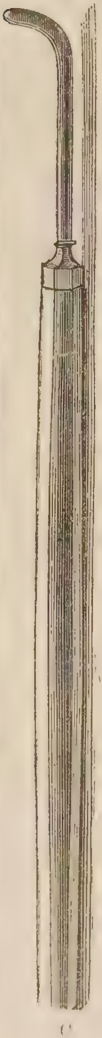
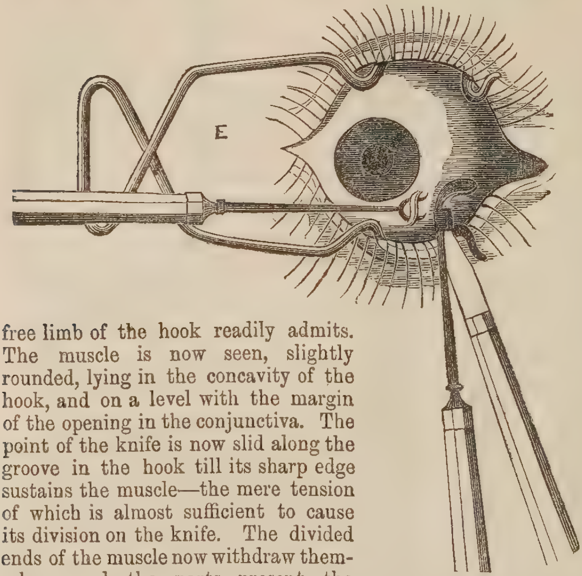


C

its sharp concave edge protrudes beyond the groove, and presents a cutting surface. The mode of operating as represented in the sketch E, is as follows:—The patient being placed in a reclining position under chloroform, and the speculum being adjusted, the double hook is next inserted so that it takes up a fold of the conjunctiva close under, and in a line with, the insertion of the muscle to be cut, and so held that its convexity rests upon the eyeball. A vertical incision is next made, external to the hold held by the double hook, through the conjunctiva and its underlying tissue. This opening need not exceed two, or, at the utmost, three lines in length. The director hook is next introduced flat on the globt, which it sweeps till the muscle is included. Its point is passed under and beyond it, which will be known from the diminished resistance experienced. The point of the hook is now to be manœuvred towards the conjunctival incision till it can be brought out at the apex of the latter—the curve being still within it—a movement of which the shortness of the free limb of the hook readily admits. The muscle is now seen, slightly rounded, lying in the concavity of the hook, and on a level with the margin of the opening in the conjunctiva. The point of the knife is now slid along the groove in the hook till its sharp edge sustains the muscle—the mere tension of which is almost sufficient to cause its division on the knife. The divided ends of the muscle now withdraw themselves, and the parts present the least possible evidence of disturbance. Should the eye not immediately assume its desired position, the hook should be again introduced, and any cellular connections broken up—a precaution which will generally be found sufficient. The wound heals by the first intention—a process greatly favoured by a few hours' water-dressing, and beyond slight chemosis round the site of the incision for a day or two, no trace of the operation remains. I have operated in eight cases in this manner, and my second case was the only one in which my success was merely partial—a result not a little owing to the restlessness of my little patient, and the interference of its parents, who insisted on being present. In four of my cases only was there marked difference of visual power. In one, the defective eye recovered almost immediately; in the others, the improvement was more gradual. There is one point to which I must not omit reference:—In regulating the effect of the section, I found it necessary, the greater the distortion, the farther from the insertion of the tendon to divide the muscle, and *vice versâ*.



Success in the cure of strabismus by operative measures entirely depends on two conditions:—In the first place, on the selection of appropriate cases; and, in the second, on the having the means of operating readily, with certainty, and with as little disturbance of the ocular structures as possible. The former, I believe, will be rendered comparatively easy by careful attention to points in the nature of the affection, such as I have briefly referred to in the beginning of this paper, while the very great facility with which I have operated in the method I have last described, and the almost uniform success of the few cases in which it was followed, must serve as my apology for recommending it as the best means of answering the second of the conditions on which successful removal of strabismic distortion may be effected.—*Glasgow Med. Journal, April*, 1859, *p.* 51.

142.—RECENT STRABISMUS CURED BY REMOVAL OF NECROSED BONE FROM A WHITLOW.

(Under the care of J. W. Hulke, Esq., Royal London Ophthalmic Hospital.)

The influence of peripheral sources of irritation upon the nervous system is well known. Teething and convulsions, lumbrici and epilepsy, are familiar examples as regards the great centres themselves. Instances of the sympathetic affection of single nerves, or of isolated groups of muscles, although less frequent, are by no means uncommon. We mentioned, two months ago, a case confirmatory that tenia in the intestine sometimes cause a circumscribed patch of alopæcia on the scalp, and a severe but localised headache. Strabismus in young children sometimes supervenes apparently in connexion with worms. The subjects of the curious manifestations of nervous sympathy are, however, almost always either children or delicate women, in whom the cerebro-spinal system is peculiarly susceptible. The following case exemplifies the occurrence of a squint, in an adult man, seemingly in consequence of the irritation caused by a whitlow. At any rate, the squint came on coincidently with the necrosis of the terminal phalanx of one finger, and was wholly cured by the removal of the dead bone.

Owen Jones, aged 37, applied at the Royal London Ophthalmic Hospital, September 24, 1858, for advice about his left eye. He gave the following account of his case:—

Seven weeks previously a whitlow came on the last phalanx of the thumb of his left hand; this was followed by inflammation of the lymphatics, and the gland above the elbow and those in the armpit became enlarged and very tender. The whole arm was very painful. While the limb was in this condition, one morning, on getting up, he found that he saw double, and had a squint in his left eye: this induced him to come to the Ophthalmic Hospital. It was found that he had complete paralysis of the ext. rectus muscle, and could not turn the eye out beyond the middle line. He also complained of severe circumorbital pain. He was directed to poultice the whitlow, which had burst; to foment his arm, and keep it up in a sling, on the supposition that the pain about the orbit and the paralysis of the outer rectus might depend on periosteal inflammation. Iodide of potassium was prescribed, which he took till November 23rd, without any improvement of the eye. The enlargement of the glands in the armpits and above the elbow, and the swelling of the arm, had quite subsided. A loose bit of dead bone could be felt through a sinus on the under surface at the end of the thumb. It was extracted with a pair of dressing forceps.

30th. He states that all pain in the arm, and about the orbit, left him soon after the removal of the dead bone. The squint also disappeared. He can turn the eye out till the margin of the cornea nearly touches the canthus. It is only when he looks to his extreme left that he sees double.—*Med. Times and Gaz., Jan.* 29, 1859, *p.* 111.

143.—*Restoration of the Lower Eyelid.* By W. Bowman, Esq.—We had an opportunity the other day of again seeing a patient on whom about three months ago, Mr. Bowman performed a plastic operation for restoring the lower eyelid. A boy of rather delicate appearance was admitted on account of the great disfigurement consequent on total loss of the right lower lid from sloughing after fever. The skin of the cheek was drawn upwards, and was adherent to the lower edge of the orbit, the under part of the globe being exposed. The motions of the eye itself and its sight were perfect. The method adopted consisted in the transplantation of a large flap of skin from the temple, long enough to reach, when twisted over, to the inner canthus. The cheek where united to the orbit was freely detached, care being taken to dissect upwards the adherent conjunctiva, and no portion of the cicatrix being sacrificed. The flap was fully an inch in breadth, and was secured in place by numerous interrupted sutures of wire. The operation was a bold and extensive one, and much interest was excited in the minds of those who saw it performed as to what the result would be. It was necessary on the following day to take up the flap again on account of hemorrhage from its under surface; and milder measures failing, the bleeding spot was touched with the actual cautery. In spite, however, of this disturbance very good union resulted and without the least sloughing. At present (nearly three months afterwards) the result is exceedingly good. The lower part of the globe is well protected by the new lid, and although of course the scars are somewhat disfiguring, yet the improvement to personal appearance is most positive. Mr. Bowman attributes the effect obtained—which is certainly better than what we often see after similar procedures—to his having taken a very large flap. This indeed appears to be a main secret of success in plastic surgery. The flap should at the time look as if twice as large as requisite. In the subsequent process of contraction it may then be expected to make a good fit, whereas, if at first of apparently proper size, it will often shrivel up to a mere roll, and be a greater disfigurement than the previous deficiency.—*Med. Times and Gazette, Dec.* 18, 1858, *p.* 629.

144.—CASES OF GRANULAR OPHTHALMIA, TREATED BY THE APPLICATION OF GONORRHŒAL MATTER TO THE EYE.

By George Murray Humphry, Esq., Surgeon to Addenbrooke's Hospital, Cambridge.

Case 1. Wm. Ford, aged 49, a thin pale man, had been the subject of ophthalmia for more than three years. The disease was, he believes, caused by particles of sand getting into his eyes when following the occupation of digging for coprolites ; it was at first neglected, then treated with stimulating applications, and gradually assumed a very aggravated form. The conjunctiva of the lids and of the hinder part of the globe in each eye was in a highly granulated and vascular state ; the surface of the right cornea was so opaque that he could scarcely distinguish light from darkness ; and in the left cornea there was not sufficient transparency to enable him to guide himself ; the lids extremely relaxed. He had undergone a great variety of treatment, in and out of hospital, both in Cambridge and in London, without deriving the least benefit ; and there was much reason to fear that he would be blind for the remainder of his life.

July 17, 1858. Some fresh gonorrhœal matter was taken from the penis of a man and applied to the conjunctiva of the right eye. This was followed by very severe purulent ophthalmia of both eyes, the conjunctivæ swelling, and the surfaces of both corneæ becoming quite vascular. Fomentations and frequent washings with warm water were used. Gradually the inflammation diminished ; the conjunctival swelling subsided ; the purulent discharge ceased ; and the corneal structure again came into view, and became more and more clear. The left cornea is now nearly transparent, and the right is more so than it has been since the first commencement of his malady. He can read large print, and is able to commence working upon the roads. The granulations upon the conjunctivæ are verymuch less large and numerous ; and it is hoped the improvement will continue.

Case 2. Catherine Coyfield, aged 14, a healthy girl, had suffered under ophthalmia for four years. The disease, at first neglected, and then treated with nitrate of silver, had become intractable, and resisted the ordinary remedies, employed with great care by the different surgeons of the hospital under whom she had been, at intervals, as in and out patient, for more than two years. The conjunctiva of the lids and back of the globe was very granular, and the corneæ were so opaque and vascular, that she could scarcely see to guide herself; so that she was quite unfit for any work. Her condition was a source of great anxiety, the result of past treatment leading to the apprehension that no remedy would be found.

July 17th, 1858. Some pus was taken from the eye of the gonorrhœal patient above mentioned, which had recently been destroyed by ophthalmia, and applied to the conjunctiva of the girl's right eye. Purulent ophthalmia ensued in both eyes, very severe, but not quite so severe as in the case of Ford. It gradually subsided; and the corneæ became clearer, so that by the end of August, she could guide herself about very well. The improvement has continued; and she has for some time been able to read small print, thread her needle. do needle and other household work, and indeed see very well. The corneæ had very nearly their natural transparency; and the conjunctivæ have an almost healthy condition.

In clinical remarks upon these cases, Mr. Humphry observed that granular ophthalmia has hitherto been one of the opprobria of surgery —a truly sad and almost intractable disease. Many cases had come under his care, and he had paid great attention to them, without good result; and he had witnessed similar want of success at the hands of other surgeons. In communications with experienced medical men, and in visits to hospitals in Great Britain and on the continent, he had made a point of inquiring respecting the treatment of this disease, without gaining any satisfactory information. In two obstinate cases, he had carefully dissected away the morbid conjunctiva from the under surfaces of the lids: in one of these, an old soldier, decided improvement followed the operation, the man regaining and retaining very fair sight; in the other, little or no good was done. He was prepared, therefore, to give a favourable consideration even to the suggestion of the somewhat revolting and hazardous experiment of applying gonorrhœal matter to the eye, which had been already carried out by Mr. Bowman at the Moorfields Eye Infirmary. The principle obviously is that of curing a chronic inflammation and its results by exciting a more severe inflammation in the structure; and, as no other agent that he could think of was likely to produce an impression sufficiently severe and prolonged to work the desired effect, Mr. Humphry determined to introduce the gonorrhœal matter into one eye of each patient. It is worthy of remark, that acute inflammation of both eyes quickly followed. The result has been most satisfactory, inasmuch as good sight has been restored in one, and very fair sight in the other of two persons, who were nearly blind, and apparently condemned to remain so. It need scarcely be observed, that such a mode of treatment should be reserved for the very worst cases, those in which the cornea has become so opaque that useful vision is lost, and in which a fair trial has been given to milder means. The cases above related, and others in which the same plan has been followed, seem to corroborate the statement that, in protracted cases of granular ophthalmia, where the cornea has become opaque, there is less liability to sloughing of that tissue under the severe inflammation excited by the application of gonorrhœal matter, than where the organ is in a more healthy condition.—*British Medical Journal, Jan.* 1859, *p.* 59.

145.—ON STRUMOUS OPHTHALMIA.

By Mitchell Henry, Esq., Surgeon to the Middlesex Hospital, and to the North London Ophthalmic Infirmary.

The most striking symptom that accompanies the so-called strumous ophthalmia is intense intolerance of light—in medical parlance, photophobia. This symptom is almost pathognomonic of the affection; for though in other diseases of the eye the patients can hardly bear the light, in no one of them does the symptom reach to anything like the same intensity. Whenever you see a little patient with the head held down, the chin buried in the bosom, the eyes carefully guarded from the least access of light, either by the hands or by some other mechanical means, and the lids themselves distilling copious scalding tears, whilst the least attempt at examination causes instantaneous spasmodic twitchings and startings of all the muscles of the face, especially those of the orbit, you may feel sure that you have before you an example of this disease. If you do get a glimpse within the lids, you find the eyeballs rolled upwards, buried beneath the upper lid, the white surface of the eye traversed by red tortuous vessels, often gathered in bundles, and leading to little irritable-looking pustular prominences on the cornea; whilst the lids themselves and their mucous lining are swollen, puffy, fiery red, and often white in spots with pus. If the disease has continued long, or has originally taken that course, you find that which should be a clear white cornea, dull, hazy, and, may be, the seat of one or more little cup-shaped ulcers, which appear as if they threatened to cut their way into the interior of the eye; and if there have been many such attacks, you find upon the corneal surface dense whitish specks, often, however, as much attributable to the treatment as to the disease. Some persons regard these cup-shaped ulcers as truly scrofulous, in which case they should have a base of tubercular deposit; but I am not aware that this has ever been demonstrated, and in many instances I am persuaded that they belong to the same category of ulcers as the little painful aphthæ in the mouth which often trouble persons whose stomachs are irritable. The affection is confined to the external tunics of the eye and lids—chiefly to their mucous lining. Truly there is no retinitis, no iritis, generally no sclerotitis—absolutely nothing but an inflamed and congested mucous membrane. Whence, then, the overpowering photophobia? If the retina be sound, why cannot the patient bear the stimulus of light? The answer to this question is not easy; indeed, I have never seen a satisfactory explanation of the phenomenon.

In reflecting upon the subject, you should remember that in a state of health the eye is protected by the most delicate of all coverings—by the finest, softest mucous membrane. A sufficient supply of mucus keeps the surface of the ball lubricated, and the lids move up and down without the smallest friction; but let the minutest foreign body get upon the eye, a speck of dust so small as almost to evade detection, and what is the immediate consequence? A spasmodic closure of the lids, an absolute inability to open the eye and expose it to the light, and next a copious flow of tears to wash away the offending irritant. Are not these results exactly the phenomena of the strumous ophthalmia, and do they not proceed, in part at least, from the same cause—an altered, roughened mucous membrane, which, from its congested swollen state, has become an irritant instead of a protector to the eye? The eye feels, in fact, as if, instead of a single particle of dust, it were powdered over, and so the amount of spasm is proportionate to the cause. I am far from saying that there is not a degree of nervous irritability of the retina, allied in character to the nervous irritability of the encephalon, which in children gives rise to a very common kind of convulsion, as well as a peculiarly acrid condition of the secretions; but I do think that much is attributable to the circumstances mentioned above. We know that the retina and the conjunctiva are in intimate sympathetic relation, a common example of which is the ecchymosed eye, which sometimes follows the prolonged employment of the microscope. I have heard also of the case of a gentleman, who never drinks burgundy without bringing on intense itching of the eyelids and intolerance of light. Children with this photophobia lie upon their bellies, and keep their faces buried in the pillow for days and weeks, partly to exclude the light, but also to prevent all motion of the lids; as a general rule, they do not open them in the dusk.

Well, then, having recognised the disease, which these symptoms will enable you to do readily enough, you will notice also that it is often accompanied by a swollen upper lip, a sore and reddened state of the alæ nasi, and by a crusted eruption on the face, caused, perhaps, in part by the irritation of the scalding tears; but you need not put your patient to the pain of a prolonged and curious examination. If the attack is not of very long continuance or of unusual severity, be content without getting a full view of the cornea; for your remedies will soon diminish the vascular congestion, and then you may see the eye without resorting to undue violence. Regarding the disorder as an indication of an acid and foul condition of the primæ viæ—an outward sign of a constitutional disorder—you must proceed to treat it as you would any such complaint in another part of the body, and your remedies consequently divide themselves into—1st, constitutional medicines; 2nd, attention to diet; 3rd, local treatment.

Your first measure must be the administration of an active purgative to clear away that thick and peccant mucus which always occupies the intestines of delicate, ill-nourished children. Give such a purgative as will stimulate the glandular structure of the small intestines, and, by inducing a free watery secretion, wash them clean. For this purpose there is nothing like calomel, for, as a purgative, it is often invaluable. It acts straightway on the delicate glandular structure of the intestines, just as, continued for some time, it acts at last on the salivary glands of the mouth, and produces from them a copious pouring out of saliva.

The best combination is calomel, rhubarb, and scammony, repeated two or three times if necessary, for when the intestinal mucus has been got away, some amelioration of the symptoms will almost immediately follow; and when the secretions are right, be careful to maintain them so, by yourself examining the evacuations, and do not trust to the report of a nurse. On children an emetic will often act like a charm, and for the moment subdue at once the photophobia and the intolerable itching; but in adults such remedies are not so readily submitted to, and you must be content with purgatives. Your next resources are alteratives and tonics. If the digestion be very weak, nothing answers so well as small doses of mineral acids, with a little chloric ether, in light infusion. Where iron agrees, and is carefully watched, it is excellent; but it cannot sometimes be digested, and then it does more harm than good. Quinine, however, will almost always agree with both old and young, and is generally followed by such marked results that some persons almost consider it a specific.

The next point, which, considering its relative importance, I have placed second, is *diet and regimen*. It is precisely in the *ill-nourished* that the disease most frequently occurs, but mind that this term does not include merely the poor and indigent who labour under an actual deficiency of food, but all those who, from whatever cause, do not derive the proper amount of sustenance from the food they take. Many a child who is stuffed with milk and porridge, and meat and wine, until the digestive organs are well nigh ruined, is, after all, very imperfectly nourished; for not only is very little chyle actually formed from all this mass of food, but the chyle that does exist never comes for absorption into contact with the intestinal lacteals. The inner intestinal surface is effectually guarded by thick, tenacious mucus, and the chyle is rolled on with the mass of undigested matter and cast into the draught. This explains the surprising way in which a child will sometimes pick up, and in a few days gain some pounds in weight, after the operation of a brisk cathartic. The mucus is cleared away, and the lacteals left free to absorb the chyle, with which, for the first time, they come in contact. Never, then, forget to administer an occasional purgative to both old and young when these disorders of mal-assimilation are concerned. But your care must not stop here; you must carefully regulate the diet. A common food of children, until they are ten or twelve years old, is, as you know, bread-and-milk, plain or boiled, than which nothing can be worse contrived. Milk contains the constituents of almost all kinds of food; it has the albuminous, oleaginous, and watery elements, as well as sugar, certain salts, and inorganic principles. To the young child it represents all the necessary elements of food in a combined form, which, from its years and want of teeth, the child cannot seek out for itself. The moment, however, the child begins to use the ordinary food of human beings, the time for milk, as a staple article of diet, has passed. Each separate element is assimilated from the different articles of food—from the bread, the meat, the vegetables, and farinaceæ; and, therefore, to continue a diet which combines them all in itself, and which is indispensable when nothing else can be taken, is to overload the stomach, and bring on all the evils of mal-assimilation: the flabby, watery flesh, the tumid abdomen, pasty-complexion, and clay-coloured stools. When, again, the milk is boiled, it becomes, from the coagulation of the albumen, still more difficult to digest; as the common people say, it is "binding"—which means that, being not readily digested, it produces constipation. Substitute, therefore, for this unwise combination, either milk largely diluted with water and sweetened, or, what is far better, weak fresh-made tea, not allowed to stew, but poured off fresh from the leaves, adding to it a fair share of milk and sugar.

It is well known that tea and coffee have a specific and remarkable effect in controlling the eremacausis of the tissues, and thus modern chemical researches explain the sustaining power of these beverages, which has long been familiar to pedestrians and sportsmen. The rest of the food should be meat, with a due supply of vegetable (not much soup or broth), and bread, dry toast, and plenty of fresh butter. To assist the digestion of the principal meal in delicate children, a tablespoonful of any kind of wine will be found most useful. And here, in passing, I must not omit to caution you against the bare legs and arms with which these little ones shock the thoughtful, as much as they gratify the pride of their mammas. The young animal requires *warmer* clothing than the adult, not less warm. Neither must a daily tepid bath be omitted, or at least careful sponging.

In the third place, as in my opinion of least importance, I put the *local treatment of the eye*. In one word, the less local interference the better. Banish from your minds all notion that the disease is inflammatory, and, as such, to be attacked with leeches, blisters, and mercury. Remember that it is but the local sign of a constitutional disorder, incurable so long as the exciting cause remains behind. In this, as in all other affections of the eye, employ the simplest and mildest applications; above all, eschew nitrate of silver, sulphate of copper, strong solutions of sulphate of zinc, and suchlike powerful remedies, for ample experience has shown me that they are the fruitful cause of almost unmixed evil. For six years past I have abandoned all these remedies, and not I only, but for ten years several of my colleagues at the Eye Infirmary, from whom I learned the practice, have done the same. The results have been most gratifying; granular lids, chronic inflammation of the tarsal margins, ingrowing eyelashes, are almost unknown to us except in cases that have formerly been submitted to the stimulating plan. Is not the matter, I would ask you, one of common sense? All these remedies tend to alter the character of the delicate mucous membrane of the lids; they harden it, render it less silky, and although at first, by their astringent properties, they stop the discharge, they end by spoiling portions of it for secreting purposes, and convert the mucous membrane into a veritable integument. At each fresh attack of the disease more and more of the mucous membrane is spoiled, until at last its true secreting surface disappears, and you have left behind a roughened granular surface, which rubs over the eyeball, and speedily renders the cornea hazy and opaque. The subject is too important to be thus summarily disposed of, but I could not help saying this much when speaking of the treatment of a disease which, almost more than any other, suffers from injudicious management.

On some future occasion, I shall hope to speak of the use and abuse of nitrate of silver in ocular affections, but at present it must suffice to say, that so dangerous a remedy does it appear to me, that I think it ought never to be applied except by the surgeon himself, and then only under very special circumstances.

But it remains to tell you what you should do, as well as to caution you as to what you should not do. At first, what the patient most requires is, rest to the lids and exclusion of light. Repeated fomentations with warm water, or, in hospital practice, a bit of wet lint laid over the eye, and kept moist, fulfil all that is required. Generally, in a few days there will be some amelioration, and now you may place a little blister behind the ear, and repeat it every four or five days. This situation is preferable to the temple, both because the ugly mark which is left, at any rate for some time, is less conspicuous, and because the temple is too near the seat of the disease, and consequently the blister may irritate, rather than relieve. This usually affords great comfort, and you find your patient beginning to open the lids a little, and to blink at the light. At this stage, the cold douche to the eye becomes a measure of much importance; it astringes and contracts the vessels, and produces an important bracing effect. An excellent cold douche may be extemporized by filling a large funnel, the spout of which has been nearly blocked-up with sponge, with cold water, and suspending it at a height over the patient, who lies on his back on the bed, with the head hanging over a basin on the floor. This should be employed for six or eight minutes two or three times a day.

To subdue a sort of chronic photophobia, which often lingers long, nothing is better than the application of the tincture of iodine to the external surface of the lids, or, if you prefer it, the solid nitrate of silver. I have said nothing of leeches, either to the neighbourhood of the eye itself, or, as some prefer it, to the mucous membrane of the nose, for I never use them, but believe them to be almost always injurious. The whole subject, however, of leeching and bleeding in the practice of surgery requires much more time and attention than we can give it now. But you must not carry away the impression from what has now been said, that strumous ophthalmia is a disease that is readily cured; too often it assumes a form of inveterate obstinacy, wearying alike to patient and to surgeon. Since, however, this is the case under every variety of treatment, until the constitutional predisposition to the disease has been subdued, which is a work of time, it becomes the more necessary for the surgeon to beware lest, by taking a narrow and erroneous view of the pathology of the affection, he lay the foundation for diseases that are yet more serious and intractable. Amongst educated persons, who are on the watch for the local signs of the special bodily disorders to which they may be subject, this distressing form of ophthalmia may almost always be got rid of before it has reached an alarming height; but with so many of the poor, who never seem to learn from experience, however painful, it is far otherwise.—*Lancet, Jan.* 22, 1859, *p.* 78.

146.—*Unguentum Sulphuris as a remedy in Granular Conjunctiva.* By T. Wharton Jones, Esq.—Allow me to bring to the notice of such of your readers as may be interested in the matter, that the common Unguentum Sulphuris of the Pharmacopœia, has of late been tried at the Eye Infirmary of University College Hospital, as a remedy in granular conjunctiva, with very encouraging results.

In my work on "Ophthalmic Medicine and Surgery," the local procedure recommended in the treatment of granular conjunctiva, consists in scarification of the affected part every second or third day, and immediately thereafter, the application to it of some strong salve, such as the red precipitate.

In scarifying, small crucial incisions are recommended to be made through each granulation; or, when the granulations are small and closely compacted, a number of cross hatches all over the surface of the affected conjunctiva.

The mode of applying the salve again, which is recommended, is as follows:—A piece the size of a split pea is to be taken up on the point of a probe, or on the point of the nail of the little finger of the right hand, and insinuated under the upper eyelid, while this is drawn forward from contact with the eyeball. When the salve is fairly on the eye, the upper eyelid is to be gently drawn down and rubbed over the eyeball with the finger for a minute or so, in order to diffuse the salve, now melted by the heat of the eye, between the eyelids and eyeball, and consequently all over the conjunctiva.

In using the sulphur ointment, I have adopted exactly the same procedure.

The sulphur ointment causes rather more pain than the red precipitate ointment.

Marked as the good effects of the sulphur ointment have been found to be so far, it remains for experience to show whether we shall be indebted to it for anything like a complete and permanent cure of that miserable complaint of the eyes—granular conjunctiva.

Reflecting on the peculiarly inveterate character of granular conjunctiva, the idea occurred to me that the disease might possibly depend on, or at least be kept up by the existence of some parasitical organism, and that accordingly sulphur might prove a remedy. I was thus led to try unguentum sulphuris (the most convenient form of the remedy for the purpose), instead of the red-precipitate ointment which I had previously been in the habit of using.—*Med. Times and Gazette, Jan.* 15, 1859, *p.* 68.

147.—ON THE ADAPTATION AND USE OF ARTIFICIAL EYES.

[The appended remarks on the adaptation and use of Artificial Eyes are from notes by Mr. Gray, the manufacturer for the Moorfields Hospital.]

The artificial eye can be introduced in a week after the operation, but care must be taken that it is not too large, the object being at this time just to keep the lids in proper position. If the insertion of the eye has been long delayed it should be at first left in for two days, and a larger one can be worn on the third day. Should this then cause any irritation, uneasiness, or increased discharge, it must be taken out, and replaced by the smaller one, until the former can be borne. Generally in about ten days or a fortnight the proper size can be inserted, though sometimes it can be done in a week. When the proper eye has been fitted the patient should be instructed to take it out every night before going to bed, and sleep without it, the eye being placed in a small box till the morning.

The following rules (which have been printed) are then given to the patient for his guidance :

To take the eye out.—The lower eyelid must be drawn downwards with the middle finger of the left hand, and then, with the right hand, the end of a small bodkin must be put beneath the lower edge of the artificial eye, which must be raised gently forward over the lower eyelid, when it will readily drop out ; at this time care must be taken that the eye does not fall on the ground, or other hard place, as it is very brittle, and might easily be broken by a fall.

To put the eye in.—Place the left hand flat upon the forehead, with the fingers downwards, and with the two middle fingers raise the upper eyelid toward the eyebrow ; then, with the right hand, put the upper edge of the artificial eye beneath the upper eyelid, which may now be allowed to drop upon the eye. The eye must now be supported with the middle-fingers of the left hand whilst the lower eyelid is raised over its lower edge with the right hand.

After it has been worn daily for twelve months the surface of the artificial eye becomes rough ; when this happens, it should be replaced by a new one, for unless this is done uneasiness and inflammation may result.

Though there are patients who have worn the same eye for eighteen months or two years before a change is required, sometimes they are worn out in much less time, six months for instance. It appears that the enamel of the artificial eye is acted on, in some way, dependant on the chymical composition of the secreted fluids.

It occasionally happens, after sometime wearing the eye, or from the patient taking much exercise, or being exposed to drying winds or heated atmosphere, that the mucus dries on the artificial eye in a line corresponding with the palpebral aperture. These layers of mucus increase and the tears are not able to clean the surface of the eye ; the inner aspect of the eyelids thus passes over a rough substance which sets up irritation. In such a case the eye should be placed in a glass of water on going to bed and left till the morning, or the dried secretion can be washed off with a little sulphuric acid and water (one part of acid to five of water.)

If the printed rules are followed out, no sinking of the artificial eye takes place after it is properly fitted ; and experience of the last four years rather shows that the eyelids then continue to assume a more natural appearance. Large orbital apertures are cosmetically the most unfavourable for wearing artificial eyes ; the smaller the orbital aperture the more complete is the cosmetic effect.

If the operation has been followed by much infiltration of blood or by inflammation, it does not appear that the final result is impaired, but these patients are obliged to wear a small eye for a considerably longer time.

There are cases, in some of which a foreign body has passed through the globe (small shot, &c.) and, perhaps, become lodged in the orbital tissues, in which the discharge continues for an undue time. In these cases the best plan is to let the patient wear a small artificial eye, and to wait until the discharge has considerably decreased before a larger one is fitted.

No case has occurred in which the breaking of an artificial eye, while in the head, is known to have caused any serious injury.

The cosmetic result is most perfect for motion, when a stump is left for the artificial eye to rest upon ; but, if a transparent cornea remains, the irritation, caused by the artificial eye, is so great that it makes it desirable to remove the cornea.

Cases are occasionally found in which a band of thickened conjunctiva stretches from one angle to the other, narrowing the palpebral aperture and thus gradually expelling the artificial eye. In other cases, granulations spring up from the conjunctiva; they have been seen to fill the orbit, so as to prevent, altogether, the patient wearing an artificial eye. These accidents can be traced probably to three principal causes; first, that the patient has not followed the instructions for the removal of the eye; second, that he has not exchanged it for a new one in due time; and, third, that giving way to the wishes of the patient, a somewhat larger eye than is proper for the case has been fitted.

If a complication with entropion or ectropion, or any other malformation of the lids exists, it ought to be remedied before an artificial eye is inserted, because the effect of the lids on it is, in some degree, the same as on a normal eye, that is to say, irritation, discharge, and loss of transparency.

When the globe has been *excised* it is still a desideratum that some artificial support for the artificial eye should be found: Mr. Moon, the late House Surgeon of the Royal London Ophthalmic Hospital suggested artificial eyes, with the edges inverted. Such eyes succeeded in removing the sunken appearance, but in the course of time caused irritation and accumulation of discharge.—*Ophthalmic Hospital Reports, Jan.* 1859, *p.* 303.

148.—CONTRIBUTIONS TO THE PHYSIOLOGY OF HEARING.

By Dr. J. Moorhead, A.M., Weymouth.

As the Physiology of Hearing is a subject of great and increasing interest, more especially in these days when aural surgery is progressing with such rapid strides, a few remarks on some points connected with it may not be deemed altogether unimportant.

It is not my desire, however, to enter at length into the *questio vexata* recently discussed in the columns of a contemporary in relation to the modes of treatment of perforate membrana tympani; but rather to call attention to some facts and arguments touching the *theories* in question, and then to notice other points of peculiar interest to the physiologist.

The uses of the tympanum and its membrane first claim our consideration. The *principal* functions of the membrana tympani, according to Mr. Toynbee, are (to use his own words):—

1. "To form part of the resonant walls of the tympanic cavity, whereby the sonorous undulations are thrown upon the membrana fenestræ rotundæ."

2. "To act as the analogue of the iris in the eye, and defend the ear against too violent sonorous vibrations; and also, on the other hand, to place it in a position to receive and appreciate those most faint and delicate."

With regard to the first proposition, it may be observed that, though the membrana tympani does form part of the resonant tympanic walls, and thereby, no doubt, serves the purpose above-indicated; yet this should hardly be regarded as one of its *leading* functions. That this office does not deserve the importance which Mr. Toynbee attaches to it in the economy of the ear is demonstrated by appealing to the facts supplied by the comparative anatomy of the organ. All who are acquainted with the structure of the ear in the class Reptilia, in which a membrana tympani first presents itself, must be aware that a fenestra rotunda does *not* exist in any of these creatures, with the exception of Crocodilidæ, in consequence of the non-development of the cochlea. Hence it is obvious that this alleged function of the tympanic membrane is not a principal nor an essential one.

The second proposition obtains in mammals, though it will not apply to reptiles and birds. In the former the tympanum is provided with a chain of bones which, being acted upon by special muscles, can regulate the tension of the membrane, and thus defend the ear; but in the latter, a single bone, termed columella, supplies the place of the ossicles in mammals, which, being unfurnished with muscular appendages, cannot possibly affect the condition of the drumhead.

Proceeding, then, on the principle of elimination, we discard the two foregoing uses, considering them only subordinate, and arrive at the conclusion that the membrana tympani must subserve some more important end, invariably accomplished by it throughout the animal kingdom.

What, it may be asked, is this great object of the membrana tympani? Comparative anatomy affords an answer. This structure is first developed in Reptilia, which is the lowest class of animals called upon to exercise the sense of hearing in atmospheric air. Sonorous undulations in this subtle medium being comparatively faint and delicate, necessitate a more elaborate development of the ear in all air-breathing animals than in those destined, like fishes and other aquatic tribes, to appreciate sound excited in water. This higher evolution of the instrument, which is merely a beneficent adaptation of means to ends, consists in its simplest state of a tympanum traversed by a columella which has no muscular relations, and terminated by a thin but strong membrane—the membrana tympani. The latter, as is well known, is on a level with the surface of the head, and may be easily seen in lizards, tortoises, and other reptiles. It is formed by the general integument becoming attenuated so as to produce a delicate and susceptible membrane capable of freely vibrating in unison with the faintest sonorous undulations of air. Vibrations, being thus excited in the membrana tympani, are directly transmitted to the columella (for the latter is closely adherent to the membrane), and thence to the membrana fenestræ ovalis, to be conducted onwards by the perilymph to the expansion of the auditory nerves. That this is the course normally pursued by the vibrations is rendered most obvious by the arrangement which obtains in serpents. In this order, owing to the special provision to enable the creature to enlarge the mouth to its greatest extent, the space otherwise occupied by the tympanum is completely filled by the large muscles attached to the jaws; and the only remnant of this cavity is the columella, which lies in the midst of muscular masses, and extends from the membrana tympani to the fenestra ovalis. This, which is the most elementary condition of a tympanic apparatus, must obviously fulfil its essential function,—namely, the reception and concentration of the delicate sonorous impulses of air.

It may be observed that the facts just mentioned are widely opposed, if not directly antagonistic, to the views propounded by Mr. Toynbee. This gentleman states, "that the sonorous undulations instead of passing through the chain of ossicles to the labyrinth are conducted from the membrana tympani *to the air* in the closed tympanum, and thereby impinge upon the membrana fenestræ rotundæ."

If the argument from analogy have any weight, it must be apparent to every unbiassed mind that this theory cannot be regarded as correct. If the vibrations be conducted to the air in the tympanum and not to the ossicles, it is then impossible to account for the transmission of the undulations across the tympanum of serpents, since in them this chamber is entirely destitute of air. This statement cannot be rebutted on the ground, that in serpents the sense of hearing is imperfect, since observation and experience concur in testiying that their powers of hearing are not only acute, but render them even susceptible of the charms of music. Moreover the cochlea in these creatures, so far from ministering to the reception of vibrations that are conveyed, as Mr. Toynbee believes, by the tympanic air, does not present even a rudiment of development.

It is manifest, therefore, that though vibrations of the membrana tympani in the higher animals are undoubtedly conveyed by the air in the tympanum to the membrana fenestræ rotundæ, and thus to the cochlea, yet this is not their only route ; nay, it is entirely subordinate to the other more eligible course,—I mean that which is invariably present in the higher air-breathing vertebrata, consisting of the membrana tympani, osseous conductor (columella, or chain of ossicles,) and membrana fenestræ ovalis. This channel primarily and chiefly conducts the vibrations to the vestibule and semi-circular canals, while the other transmits them to the cochlea ; and thus all parts of the labyrinth are affected by the sounds of the external world. Conducive to this end, too, is the free inter-communication of the perilymph, which serves to diffuse the vibrations more extensively over the acoustic surface, and thus to render their perception more acute.

But this novel doctrine of Mr. Toynbee receives its refutation, not only from the facts of comparative anatomy, but also from the results of experimental inquiry. It is needless to do more than mention the experiment by Müller, recorded in Todd and Bowman's "Physiology," part iii., page 96. That experiment is complete as regards all its mechanical details, and the result must be looked upon as conclusive. While the apparatus accurately represented the ear of the higher animals, the difference in intensity of the sound heard, when the end of the rod was transferred from the membrane corresponding to the fenestra ovalis to that representing the fenestra-rotunda, was unmistakeable.

It has thus been shown that comparative anatomy and experiment concur in maintaining the usual doctrine, which regards the *ossicula auditus* as the chief conductors of sound from the membrana tympani to the labyrinth ; and until stronger evidence is adduced in opposition than that given by Mr. Toynbee, we are not warranted in rejecting it.

This leads me to notice briefly the acoustic principles involved in the use of the various agents that have been successfully employed in the treatment of perforate membrana tympani.

It may be here premised, that although I do not advocate the necessity of a *closed* tympanum in order to perfect hearing, yet I believe that the aperture in the perforate condition of the membrane must be closed before the proper use of the organ can be re-established. While, however, I agree so far with Mr. Toynbee, I must at the same time be allowed to dissent from his theory of the action of his vulcanized membrane. He believes that the latter prevents the escape of the sonorous vibrations from the tympanic cavity,—which is a mere whispering gallery in his estimation,—and thus ministers to the restoration of the sense. Without resorting to this questionable theory, I think the *modus operandi* of the artificial membrane may be explained on more rational and philosophic principles.

The membrana tympani is normally thrown into vibration in a twofold manner : 1st, by sonorous undulations which are reflected upon it by the walls of the meatus ; 2nd, by vibrations directly propagated to it from the external ear and meatus. Now, these vibrations may be impeded by many causes occasioned by an aperture in the membrane. Amongst these causes may be enumerated the following : 1. Impaired elasticity of the membrane, and diminished excursion of its vibrations. 2. Subdual of sound consequent upon interference of its waves. 3. Resistance of currents of air passing to and from the cavitas tympani during the oscillation of its membrane. These causes will only come into operation when the aperture is of considerable size, and hence the immunity from deafness, as admitted by all authors, which is enjoyed by persons in whom the orifice is small, so long as the other parts of the ear remain intact. The three causes above specified are given in the order of their respective potency, the resistance of the air, it is believed, being the most powerful. The *modus operandi* of the artificial membrana tympani will now be obvious. By closing the aperture, the prejudicial influences referred to are arrested, and the efficiency of the natural membrane is restored. The ingress and egress of air to and from the tympanum during the vibration of the membrane, cease; interference of sound no longer occurs; and, support being given by the artificial membrane, the original extent of the excursions is regained. Any medium, however delicate, which can effect the closure of the aperture will thus succeed in removing the resulting deafness, whether that medium be the product of accident or design. Of the former, an example is afforded in the air-bubble which is occasionally formed in the mucous or purulent secretion of the tympanum, which, while it remains in the orifice, restores the power of hearing. Of the latter, the most valuable are Yearsley's moistened cotton-wool, and Toynbee's vulcanized membrane. The latter gentleman, while he justly insists upon *complete* closure of the perforation, has put forth in support of his practice a theory which I have shown to be unsound; while Mr. Yearsley, whose views of the physiology of hearing appear to be more in accordance with the facts of comparative anatomy, falls, I believe, into the opposite error, though doubtless undesignedly, of incorrectly explaining his own facts. While he asserts that the aperture must be only *partially* closed by the moistened wool, he unfortunately appeals to no higher evidence in support of his views than the testimony of his patients in whom his treatment was successful! His directions for applying the wool are ample, indeed; but that they could not be carried out by the unassisted efforts of the patients themselves, few minds can have any reasonable doubt. My own experience, too, has shown me that in cases where very marked benefit was derived from the use of the cotton-wool, the latter slightly projected through the opening in the membrana tympani, as proved by the small prominence it exhibited on its withdrawal.

[The next division of the subject treated of by Dr. Moorhead is *the provisions made by Nature to counteract the drawbacks upon the efficiency of the ear consequent upon its own action.*]

To all familiar with the anatomy of the human ear, it is well known that the tension of the tympanic membranes is regulated by muscular agency acting through the chain of ossicles. It is needless to state that the object of the change in the condition of the membranes is to render them equally susceptible of high and low notes, and also, to prevent the nerves being painfully impressed by loud noises. This object is effected by means of two muscles—viz., *tensor tympani* and *stapedius*. Now, each of these muscles presents some points of peculiar interest as regards its structure and relations. Thus, the stapedius muscle, contrary to the usual arrangement, is fleshy in the centre, and fibrous or tendinous towards its circumference, and moreover, is lodged in the interior of the pyramid. What can be the object of this singular deviation in the stapedius from the ordinary structure of muscles, as well as of its enclosure within a hollow process of bone? A few moments' consideration will enable us to answer this question.

Since it is universally admitted that muscular action is invariably accompanied by a definite "bruit," there is every reason to believe that the contraction of the stapedius does not form an exception to this law, but is also attended by a similar sound. Now it is obvious that if this noise were transmitted inwards to the nerves of the labyrinth, it would only lead to confusion, and thus impair the efficiency of the ear as an acoustic instrument.

It is interesting to notice the means employed to obviate this untoward event, and especially to observe their analogy to those expedients constantly used by mechanists for effecting the same purpose in the construction of our elaborate musical instruments. The noise produced by the stroke of the hammer against the vibrating strings of the piano, if not deadened by the silk or baize commonly used, would completely mar the harmony of the music. These facts afford a key to the solution of the problem as regards the structure and relations of the stapedius. Sound, when passing from one medium to another of greater density, undergoes a sensible diminution consequent upon reflection, and hence we believe that whatever noise is produced by the action of the fleshy portion of the stapedius is deadened in its passage outwards—1st, by the tendinous periphery of the muscle; 2ndly, by the periosteum lining the pyramid; and 3rdly, by the bony walls of the pyramid itself. The latter, no doubt, also serves to increase the mechanical power of the stapedius by its apex acting as a pulley for the tendon of the muscle; but this office is not incompatible with that just mentioned.

Again, the "bruit musculaire" of the *tensor tympani* is also counteracted by a similar arrangement. This muscle, it will be remembered, is situated within a curved process of bone, commonly termed, from its close relation to the cochlea, the *processus cochleariformis.* Its tympanic portion is also surrounded by a structure composed of white fibrous tissue, generally known as the *tensor tympani ligament.* The means employed for deadening the sound excited by the action of the muscle, it will thus be perceived, are three in number: 1st, the cochleariform process; 2ndly, the periosteum lining this process, aided by the fibrous sheath of the muscle; and 3rdly, the tensor tympani ligament.

But the above is not the only provision for securing the object in question; there is another, which is perhaps equally effective. The science of acoustics teaches us, that when two waves of sound of equal dimensions meet in opposite phases, the effect is, the neutralization of both, and the production of complete silence. This phenomena, technically called "interference," is experimentally illustrated in the following manner, as show by Bird, Lardner, and other physicians: —When a tuning-fork thrown into vibration is held over the mouth of an upright glass cylinder, the sound is sensibly augmented by the undulations excited in the walls of the vessel. If, however, another glass cylinder of equal size be held in a direction at right angles to the first, while the vibrating tuning-fork is placed in an intermediate position, no sound whatever is heard. This can only arise from the sonorous waves excited in the two cylinders coming into conflict while in opposite phases, and thereby neutralizing one another.

Applying these facts to the internal arrangements of the ear, is it unreasonable to suppose that the hollow conical *pyramid* and the curved cochleariform process are, in position, related rimilarly to the cylinders in the experiment! May not the sonorous undulations excited by the action of their enclosed muscles, if any escape the deadening influences described, possibly be in opposite phases, and thus come under the influence of the laws of interference ?

But the muscles of the ear are not restricted to those above noticed, modern research having undoubtedly added another to the list. That gelatinous-looking structure forming the external part of the spiral lamina of the cochlea has had its claims to muscular character unequivocally established by the investigations of Todd and Bowman. These distinguished physiologists have appropriately designated it the *cochlearis muscle*. As this structure serves to protect the cochlear nerve from undue impressions of sound in the same manner as the tympanic muscles do those of the membranous labyrinth, so its action is also attended by drawbacks, which, if not counteracted, would seriously impair the perfection of the sense. Various are the means employed to effect this purpose. In the first place, the cochlearis muscle chiefly occupies the scala vestibuli,—doubtless, to be as remote as possible from the nerves which are distributed upon the surface of the lamina spiralis that is bathed by the liquid in the scala tympani. Again, since contraction, while it diminishes the length of the muscle, at the same time increases its other dimensions, it is clear that this change, being sudden, would create an agitation in the surrounding liquid, which, if not guarded against, would much interfere with the use of the instrument. This, however, is obviated by the upper or vestibular surface of the muscle being hollowed out into lacunæ, which give it a very irregular appearance, not unaptly compared to that of the cardiac carneæ columnæ. These hollow spaces, while they act like those in the heart, and prevent rupture of this structure by diminishing the resistance of the fluid, no doubt serve also, by allowing the easy insinuation of the perilymph during the contraction of its fibres, to deaden the agitation in question. Nor is confusion arising from the "bruit" occasioned by the action of the inferior part of the muscle less sedulously guarded against, for we find a spur-like process of bone projecting from the outer wall of the canal, which doubtless serves to impede, if not entirely to prevent, the transmission of the sound to the liquid in the tympanic scala.

Dismissing, however, these marks of design as displayed in the muscular arrangements of the ear, I venture to throw out a conjecture regarding the function of that beautiful structure the *denticulate lamina*, so called by Todd and Bowman. My readers will recollect that it is situate upon the upper surface of the osseous zone of the spiral lamina, and is consequently bathed by the perilymph in the scala vestibuli. Now the sonorous vibrations which ordinarily agitate this liquid, whether propagated from the perilymph of the vestibule, or that in the scala tympani, must be comparatively faint, and could not, therefore, strongly impress the nerves distributed upon the opposite surface of the spiral lamina. May not the teeth of the denticulate process, acting like so many vibrating tongues, multiply these undulations, and then transmit them by conduction to the nerves near their base? If so, this process may justly be regarded as the analogue of the otolith, having a relation to the cochlear nerves similar to that borne by the latter to those of the vestibule.

In conclusion, I may point out a few facts corroborative of the view now generally entertained regarding the function of the cochlea—namely, that it is that part of the labyrinth which more especially takes cognizance of sounds conveyed by the bones of the head.

In connexion with this hypothesis, it is interesting to notice the first appearance of the cochlea in birds, which are the lowest class of animals gifted with capacity of utterance or powers of song. Fishes and reptiles are almost universally dumb, and hence the absence of this structure in their organs of hearing. But the voices of animals reach their own ears chiefly through the cranial bones, and this at once accounts for the appearance of the cochlea in all those that are thus endowed.

In keeping with the above view, also, is the comparatively rudimentary development of this structure in Cetaceæ, called upon, as they usually are, to appreciate the powerful vibrations of sound excited in, and conveyed by, the watery element.

Moreover, this theory appears to give a clue to the discovery of the use of that peculiar leaf-like appendage attached to the nose of many species of the bat tribe (Cheiroptera). These creatures are endowed with the highest auditory sensibility, and every contrivance which could conduce to that end is brought into requisition. Not only are the external ears enormously expanded, and provided at their base with vibrating tongues of marked susceptibility, but even the nose is disfigured, so to speak, by the fantastic membranes alluded to, in order that every possible means may be employed for heightening the sensitiveness of their organs. The external ear receives sounds, and conveys them inwards through the ossicles to the vestibule and semicircular canals; while the membrane in question, being easily thrown into vibration, propagates its oscillations to the bones of the face and head, and thence to the cochlea, so that all parts of the labyrinth are equally and simultaneously affected.—*Lancet, March* 5 *and* 12, 1859, *pp.* 237, 259.

149.—ON EUSTACHIAN CATHETERISM.

By Dr. Decimus Hodgson, Assistant Surgeon, Royal Artillery.

[The safe and simple operation of Eustachian catheterism appears to obtain at the hands of general practitioners less attention than its utility demands. In treating that large class of cases of deafness which originate in affections of the eustachian tube, its use is of the greatest service, and for the most part indispensable.]

It is desirable to separate those cases which are unsuitable for its employment, and to select those which are suitable. A watch placed between the teeth, so as to touch them, is *not* heard by the person whose deafness is caused by lesion of the auditory nerve or brain. The sound is conveyed by the bones of the head to the sentient portions of the ear, and is distinctly audible when the nervous apparatus is in order. This test will serve to separate a small class of cases of deafness, in which no benefit can be derived from eustachian catheterism.

The condition of the external meatus and membrana tympani can be ascertained by any of the aural specula commonly in use. A fair view of these parts of the ear may be obtained in a darkened room, by introducing a polished speculum into the external meatus, and throwing into the instrument a strong reflection of light from a candle by means of a concave mirror. The flame of the candle should be held pretty near the patient's nose. Should the tick of the watch be heard, and the external meatus, with the membrana, be found healthy, negative evidence is afforded that either the eustachian tube or the middle ear is in fault.

To complete the evidence, the condition of the eustachian tube may be learned from the patient himself. The cartilaginous portion of the tube is closed by approximation of its walls at other times, and opened during the process of swallowing by the action of certain muscles concerned in deglutition, which are on one part attached to the tube. Should the eustachian tube be healthy, the air during this act is distinctly heard, by those who pay attention to it, to move in the ear. Those persons in whom the tubes are not free cannot perceive this sensation, and when the tubes are loosely occupied by mucus, the patient generally states that he feels a gurgling in the ear, the result of air breaking in bubbles in the secretion. Every one must remember having had at one time or another, especially when suffering from catarrh, a temporary, perhaps a momentary deafness. There can be no doubt that such a condition is due to collection of mucus in the eustachian tube or tubes, and that a restoration to a perfect sense of hearing is consequent on its displacement.

In must not be inferred from what has gone before, that eustachian catheterism may not prove beneficial in certain cases in which the auditory nerve is impaired in its powers of perception, or the membrane of the tympanum perforated. On the contrary, I believe the function of the nerve to be impaired from disuse, in many cases of eustachian deafness of long standing; and I am acquainted with a lady, deaf from perforation of the membrane of the ear on both sides, who hears very well by means of a proper apparatus, but on that side only on which the eustachian tube is free. It is proper to mention here the well-established fact, that a collection of mucus in the eustachian tube may persist for months or years, and that no means for the removal of such an obstruction, except eustachian catheterism, and mechanical appliances in conjunction with it, have as yet been invented.

I shall not reproduce in this place an anatomical description of the pair of tubes and their orifices, which may be found in all treatises on anatomy. It is merely necessary to state, that each eustachian tube opens into the upper and lateral part of the pharynx by an expanded orifice, placed on the inner surface of the internal pterygoid plate, by the side of the posterior nasal aperture, and that the passage to this opening is along the floor of the nasal cavity. The eustachian catheter which I employ is a slender tube, about seven inches in length, curved much in the same way as the urethral catheter, but perforated at the tip, and there furnished with a kind of bulb. The external extremity is provided with an arrangement to admit of the attachment of an injecting apparatus, and with a pair of rings, which are placed at right angles to the direction of the curve, so as to facilitate the manipulation of the instrument, at the same time that they serve as a guide for the position of the tip.

A single instrument, of the proper size, may be sufficient for those who have only adults to treat. Gentlemen who have younger persons under their care will find it necessary to have two or three sizes. The distance between the external aperture of the nostril and the orifice of the eustachian tube, corresponds closely with that between the first upper incisor tooth and the attachment of the soft to the hard palate. The catheter may be furnished with an apparatus for defining this distance, as obtained from measurement of the part of the mouth indicated; or if not so supplied, a piece of string, tied tightly round it at the required distance, answers the purpose sufficiently well.

Previous to its introduction, the catheter ought to be warmed by brisk friction with the hand. It need not be oiled, the mucus of the nose serving sufficiently to lubricate the passage. In introducing the catheter, the external extremity is held by the thumb on the one part, and the tips of the index and middle fingers on the other, in so light a manner, that in the event of the patient sneezing or coughing, the instrument may yield without inflicting any injury. The concavity of the catheter is downwards, as it is passed along the floor of the nose. The tip is introduced into the nostril, corresponding to the tube to be examined, and is kept in contact with the floor of the nose as the instrument passes onwards. In this part of the proceeding, the handle, which at first presented somewhat downwards, gradually ascends as the tip progresses. The catheter is passed on in this manner steadily, but lightly, until the mark indicating the distance of the eustachian orifice has disappeared a line or two in the nostril. The tip is now a little beyond the orifice of the tube. At this stage the instrument is withdrawn, so as to bring the mark into view; and coincidently with this partial withdrawal, the tip is gently turned outwards and upwards. The latter manœuvre introduces the instrument into the orifice of the eustachian tube. The rings on the external extremity of the catheter are at right angles, or nearly so, to their position at earlier stages of the operation; and the surgeon can ascertain, by a gentle antero-posterior movement, that the tip is implicated, so to speak, in the orifice of the tube.

I do not wish to overrate the facilities of this little operation when I state that, judging from my own experience in a considerable number of cases, the instrument *literally cannot do otherwise than enter the eustachian orifice*, if introduced in the manner described. At the same time I must confess, that it is not a pleasant operation to the patient, and that it is desirable, in many cases, not to persist in carrying it out at the first, or even second or third attempt. The internal parts of the nose are sometimes very sensitive, and the catheter produces a tickling, or even painful sensation, which can only be avoided by introducing it at the first trial a short distance, the second a little further, and so on until the mucous membrane tolerates its presence. Seeing that the disease for which the instrument is introduced is not a critical malady, and is not likely to be aggravated by a reasonable amount of delay, it may be concluded that no objection can be taken to preparatory measures extending over a day or two at most.

When the catheter has been introduced, it may be desirable to ascertain the character and amount of obstruction in the tube. This may be done by simply fitting an india-rubber tube to the external extremity of the instrument, and breathing in a *very gentle* and graduated current of air. Should the tube be free, the current enters the ear, and is perceived by the patient immediately. More or less mucous obstruction is indicated by the current either not entering the ear at all, or producing a series of crepitating sounds, such as are produced by air forced through a tenacious fluid.

As auxiliary treatment, I have employed inhalation of pure and medicated vapour, counter-irritation behind the ears, attention to the condition of the mucous membrane of the fauces and soft palate, and a tonic plan of treatment by iodide of potassium, or such other medicines as the nature of the cases seemed to demand. The use of iodide of potassium internally, and appropriate topical applications to the fauces, are especially indicated in those cases, by no means rare, in which deafness is accompanied by a syphilitic affection of the throat. I presume the syphilitic affection may extend, under certain circumstances, along the eustachian tube, and originate or keep up a state of deafness. In these cases I have found large doses of iodide of potassium beneficial.

The inhalation of medicated vapour may, I believe, supersede the methods of topical applications to the eustachian tube and middle ear which are now in use. Diluted iodine vapour, which I generally employ for this purpose, is made by adding from ten to thirty drops of tincture of iodine to a pint of boiling water. The iodine is well mixed with the water, and the patient inhales the vapour, so as to get the pharynx full of it, and then makes an effort of swallowing. It has been mentioned above that the eustachian tube is opened during deglutition, so that the air in the pharynx communicates with that of the middle ear. There can be no doubt that a certain amount of medicated vapour, under the same conditions, reaches the middle ear ; or, in cases of obstructed eustachian tube, so much of the tube as may be free. This process of inhalation may be gone through once a day or oftener. I consider the iodine vapour to have something of a stimulant effect on the mucous membrane of the parts, leading, in the first place, to increased vascularity, and subsequently to a more healthy action. In some cases I think I have observed the amendment in hearing to be more marked after its use has been discontinued.

I am unable to conjecture how far simple introduction of the eustachian catheter may be efficacious in suitable cases, having in all instances employed auxiliary treatment. There can, however, be little doubt, that in chronic cases of deafness from obstruction of the eustachian tube, the auxiliary treatment of itself would have proved of but little service in removing tenacious mucus. The catheter, moreover, appears to have a certain tonic effect on the structures with which it comes in contact, as may be inferred from the gradual diminution of morbid sensitiveness in the parts along which it is passed.

It may be objected to this new method of introducing vapour, medicated or pure, into the eustachian tube and cavity of the tympanum, that the application cannot reach those parts in the more confirmed cases of mucous obstruction of the tube. This is certainly true of the earlier stages of the treatment. The use of the eustachian catheter, however, and the application of an appropriate vapour, produce a beneficial effect on the lower part of the tube at first, and this effect would seem to be gradually extended to those portions of the tube and cavity of the tympanum which were not at first accessible. The desirable result does not follow immediately. It is necessary to continue the treatment for some time—two or three weeks—varying with the nature of the case. I doubt whether there is any additional delay in effecting a cure by the means recommended above, as contrasted with those generally in use. If there be, it appears to be fully compensated by the total absence of risk from artificial injury. Artificial introduction of air or fluid into the delicately furnished chamber of the tympanum must, under certain conditions, be attended by some risk of injury, even in experienced hands.—*Glasgow Med. Journal*, *April*, 1859, *p.* 17.

MIDWIFERY,

AND THE DISEASES OF WOMEN, ETC.

150.—ON THE PASSAGE OF THE FŒTAL HEAD THROUGH THE PELVIS.

By G. M. Humphry, Esq., Surgeon to Addenbrooke's Hospital Cambridge.

The fœtal head is of oval shape, with the greatest diameter from before backwards; and, in its passage through the pelvis, it is, as a general rule, so placed, by the mere pressure of the surrounding parts, that its longest diameter is, at each stage, accommodated to the greatest diameter of the pelvis. Accordingly in the first stage of parturition, the head, as it enters the pelvis, is placed transversely, the occiput being directed towards one ilium, and the face towards the other; the narrowest end of the oval which the head presents, namely that formed by the occiput takes the precedence. During the second stage, as the head descends through the pelvis, it undergoes a half-quarter turn, so that in the middle of the cavity the occiput is turned towards one obturator hole, and the face towards the opposite sciatic hole. The rotation continuing with the progress of the labour, the head undergoes a further half-quarter turn; so that in the last stage, during the transit through the inferior outlet of the pelvis and along the vagina, the occiput is directed forwards under the pubic arch, and the face is turned towards the sacrum and coccyx. The twist or screw-like movement, which is thus given to the fœtal head in its progress through the pelvis, has the further advantage of rendering its passage more easy than it would have been if the same direction had been preserved during the whole process.

The accoucheur will fall into mistakes who is not aware of this peculiarity in the shape of the pelvis, and of the rotation which the head, in consequence, undergoes. Thus, in protracted cases of labour, where the head rests at the upper aperture of the pelvis, it is often erroneously supposed that the transverse position of the cranium is the cause of the difficulty. Moreover, when forceps are necessary, the direction in which they are passed should be varied according to the part of the pelvis in which the head may be placed.—*Treatise on the Human Skeleton, p.* 443.

151.—*On the Cause of the Frequency of Head-presentations.* By G. M. Humphry, Esq., Surgeon to Addenbrooke's Hospital, Cambridge.—It has been suggested that the proportions of the head in infancy have reference to parturition ; that the head of the fœtus is of large size compared with the rest of the body, that it may gravitate in the liquor amnii to the os uteri, and, by closing that orifice prevent the presentation of the hands and feet. Those who take that view seem to have forgotten that if the weight of the head were the cause of its presenting in the erect posture of the woman, it would have rather a contrary effect when she was recumbent. Yet head-presentations are not said to be less frequent in women who keep their bed than in those who move about. Not long ago I found the head presenting in a patient who had long been confined to bed, and who died under the effects of premature labour. There can be little doubt, I think, that the presentation of the head in so large a proportion of cases is due to the fact that the contraction and pressure of the walls of the uterus bring the long axis of the child into correspondence with its own ; and aided by the movements of the lower extremities, direct the latter and the nates into the fundus or more roomy part of the organ, which causes the opposite or cranial end to occupy the pelvis.—*Treatise on the Human Skeleton, p.* 95.

152.—ON THE ABOLITION OF CRANIOTOMY FROM OBSTETRIC PRACTICE.

By Dr. W. Tyler Smith, Physician-Accoucheur to St. Mary's Hospital.

In this paper the author shows that craniotomy is resorted to in British practice about once in every 340 labours. The whole number of births in England and Wales exceeds 600,000 per annum ; and if we apply the proportion of 1 in 340 to these figures, we get a total of about 1800 cases of craniotomy per annum. This is as though every year all the children born in London during rather more than one week were sacrificed ; or as though all the children produced during the year in such a county as Westmoreland were born dead. The mortality to the mother from this operation is nearly 1 in 5, in British practice, which would give in England and Wales a maternal mortality of between 300 and 400 per annum. Craniotomy is performed about twice as often in British as in French practice, and four times as often in this country as it is in Germany. It is an obvious fact that every improvement which has ever been made in obstetrics has tended to restrict and diminish the cases and conditions in which the performance of craniotomy has been resorted to. It is the author's object to show that, with the proper and scientific use of all the means at our command, it may be laid down as a general rule, that craniotomy should not be performed in the case of a living fœtus after the period of viability has been reached. It is certain that, up to the present time, the measures which are the alternatives of craniotomy have never been carried out in practice to their full and legitimate extent. *Turning* was the first great obstetric operation which checked the voluntary destruction of the fœtus during labour. The objections to turning which some obstetrists entertain depend on an almost superstitious fear of the uterus—a fear mainly owing to ignorance of the nature of the organ, and of the laws under which it acts. The dread of introducing the hand into the uterus has prevailed almost universally. But, apart from the danger of infection, the hand of the accoucheur, properly guided, can do no more harm in the uterus than any portion of the fœtus of equal bulk. Restrictions of the most absurd kind have been laid upon the operation, and it has come to be almost limited to arm presentations and cases of placenta prævia. On the continent, turning is the recognised practice in cases of difficulty, where the head is above the brim, beyond the reach of the forceps, when the os uteri is in such a state as to admit the hand, and when no serious distortion of the pelvis exists. The operation of turning in cases of moderate pelvic deformity was practised by Denman and others, but it was dealt with rather as an exception than a rule of practice until the matter was taken up by Dr. Simpson. No unprejudiced person can read Dr. Simpson's papers on this subject without coming to the conclusion that turning may be performed in cases of moderate pelvic distortion at the full term, with comparative safety to the mother, and with a reasonable chance of safety to the child. It is also shown to be applicable to cases of greater deformity, in combination with the induction of premature delivery. Nothing has ever occurred in the history of turning which has so strongly tended to enlarge its usefulness as the introduction of anæsthesia into obstetric practice. Under chloroform, we can turn with comparative ease in cases of excessive sensibility of the os uteri and vagina, in arm cases in which the waters have been long expelled, and the uterus has closed upon the fœtus with spasmodic force. It renders turning practicable in cases of convulsions or maniacal excitement, and in all instances it makes the uterus comparatively quiescent, and thus averts the dangers depending on contraction and resistance during the operation. Turning is performed nearly three times as often in France and Germany as it is in this country. After turning, the next great step in opposition to craniotomy was the discovery of the *forceps*. Before the time of Chamberlain, whenever turning was impracticable, there was no resource in cases of difficulty except in craniotomy. But it may fairly be questioned whether the whole powers of this instrument have ever been fairly brought out, especially in this, the country in which it was produced. If we examine our standard works, we find more pains taken to show when this instrument is not to be used, than when it may be. The cases in which the forceps may be used are those of moderate disproportion or distortion, whether the arrest is at the brim, in the cavity, or at the outlet of the pelvis; cases of arrest from failure of the labour pains, without any morbid condition of the parturient canal; cases of convulsions in which the os uteri is dilated, and the head sufficiently low to be within reach of the instrument; cases of occipito-posterior presentation, not otherwise admitting of rectification, and face presentations; cases of accidental hemorrhage; and cases of rupture of the uterus, in which no great recession of the head has taken place. It should also be used at a comparatively early period in many of the cases which, if not assisted, run on to impaction from swelling of the fœtal head and tumefaction of the soft parts of the mother. The outlet and middle straits of the pelvis are the limits within which the short forceps should be used; at the brim, the long forceps is the proper instrument. The forceps is used more than twice as often in France and Germany as it is in this country. The last, and it may truly be said the greatest, opponent of craniotomy is the *induction of premature labour*. The largest single source of craniotomy is deformity of the pelvis. Now, it may be asserted, without the possibility of contradiction, that in this great mass of cases, it would be right and practicable at once and for ever to abolish craniotomy in the case of the living and viable fœtus. In all cases of suspected deformity, an examination should be made in the early or middle months of pregnancy, and the proper treatment of such cases should be the induction of abortion or of premature delivery. In cases of excessive distortion, where it would be altogether impossible for a viable fœtus to pass, abortion should be induced before the time of quickening. It would be quite impossible for intercourse and impregnation to take place in any case in which it would not also be possible to induce abortion with safety to the mother. In the very considerable number of cases of moderate distortion in which the diminished capacity impedes delivery at the full term, but would allow of the passage of a child at the seventh or eighth month with a chance of living, the induction of premature labour is the only justifiable practice. Besides the great operation of turning, the forceps, and the induction of premature labour, there are other means by which, in special cases, the necessity for craniotomy may be superseded. One of the most simple is the rectification of occipito-posterior presentations. When the occiput descends towards the sacrum in the third and fourth positions, instead of turning towards the right or left acetabula, great difficulty is produced, particularly in first labours, or when the head is large. Recorded cases of craniotomy show that the want of this rectification, which is generally possible with the hand, the lever, or the forceps, often leads to perforation. Cases of hydrocephalus in the fœtus are amongst the most difficult to deal with in an attempt to abolish craniotomy; but here we have the proposal of Dr. Simpson to tap the hydrocephalic head, and in this way reduce it, so as to allow of delivery without the destruction of the fœtus. In actual occlusion or insuperable rigidity of the os uteri, incision is a safer and better practice than craniotomy. While it is the object of the present paper to advocate the abolition of craniotomy in the case of the living and viable fœtus, there is undoubtedly a class of cases in which perforation may be practised beneficially,—namely, in labours where the child has died during the course of parturition. No woman should be allowed to remain in difficult labour after the death of the child has been satisfactorily ascertained. Considering, then, the various means at our disposal in the way of preventing the necessity for craniotomy, the author unhesitatingly expresses his conviction that, as a rule of practice, craniotomy in the case of the living and viable fœtus should be abolished; and he believes that if all the resources of obstetrics in the way of prevention, management, and alternative treatment were properly wielded, the necessity for the operation would not arise.—*Lancet, Feb.* 12, 1859, *p.* 161.

153.—ON DELIVERY BY TURNING AS A GENERAL RULE.

By Dr. Edwd. Garland Figg, Licentiate of the Faculty of Physicians and Surgeons of Glasgow.

[The following paper may startle some timid surgeons, but ever since the paper of Dr. Simpson on this subject was published, we have often thought that turning in preference to the forceps (where it could be done before impaction took place) would be a much safer and easier process. In more than one case of contracted pelvis, through which, in a previous labour, the head could with the greatest difficulty pass, we have found that when the breech presented and we could extract by the feet the labour was quite different and comparatively easy. Dr. Figg recommends the right hand in turning: we differ from him in this respect. The left hand accommodates itself better to the axis of the pelvis in the usual obstetric position, and also grasps the feet easier they being to the back of the mother: with the left hand, the head above the brim and the os dilated or dilatable, turning is a very easy and a very safe process, and we think the day is not far distant when its use in labour will be greatly extended, but only or chiefly as a substitute for the long forceps or craniotomy. Dr. Figg begins by saying:]

Let me suppose that you are summoned by a midwife to a patient, by whose side she has occupied a seat for eight hours consecutively, while a repetition of vigorous contractions at intervals of four minutes has not advanced the cranium into the pelvic cavity. An examination reveals a glove-like process of the membranes extending towards the concavity of the sacrum, or if the liquor amnii has escaped the substitution of a large caput succedaneum in the same axis; the pulse beats at 110; the muscles are strained, as if the sufferer had been just laid on the rack of the middle ages; the mouth is viscid with thirst, the throat hoarse with crying; and thus the patient, corporeally exhauted, and mentally excited, awaits your verdict of her state.

Does reflection indicate the long forceps, considering the circumstances previously to their application. The swollen scalp, obliterating the sutures, the caput succedaneum almost inducing the impression of a nates presentation, the difficulty of introducing the ponderous blades from the impeding bedclothes, the difficulty of attaching them when introduced from the mobility of the head, the probability of their not locking when attached, or their liability to yield on traction, from the lambdoidal region of the cranium being alone encompassed are all so many obstacles.

Add the violent and prolonged concussion of the patient's frame, and the infant motionless, lacerated, and contused, when produced, and you have an array of evils requiring no small amount of professional fortitude to encounter.

Is the picture too highly coloured? Ask the Accoucheur of the ante-chloroform era, in whose memory it is vividly portrayed, coupled with the shricks of agony or nervous excitement, rending the air in the still midnight.

Perhaps your guardian angel suggests turning—Simpson's expedient in lieu of the use of instruments in such cases.

The patient's anxiety, and that of her friends, is at once soothed by the information that the hand alone is to be the medium of extraction. The administration of chloroform to the extent of perfect anæsthesia, relaxes the uterus, abdominal, and perineal muscles, and renders torpid the vaginal and utero-cervical nerves.

The infant seized by the feet, and drawn in the axis of its own abdomen, effects an evolution with little if any effort on the part of the operator.

Why? Because there is nothing abnormal in the movement. The fœtus by the law of gravitation or other cause, had actually a month or so antecedently transformed a breech into the present cranial presentation, and often in the descent of the arm or shoulder. Nature rectifies the error, by substituting the feet in spontaneous evolution. Again, the ordinary position *in utero*, the arms crossed in the chest, the chin in close apposition to the sternum, the legs flexed on the abdomen, and the back describing the segment of a circle in its external periphery, offers extraordinary facilities for the execution of the project, which are actually increased by the nature of the womb itself in which the infant lies, as in an elastic bottle sufficiently flexible to admit of a transverse occupation of the revolving fœtus, but antagonistically contractile to co-operate with the practitioner in instantly reducing it to the longitudinal axis.

The right hand (which I prefer to the left for introduction) is an instrument the perfection of mechanism; one that is not only exquisitely adapted for prehensile action, but furnished with nervous sensibilities, so as to discern by contact the character of objects in its vicinity. I never use the long forceps without a fear, lest the flattened extremity of the blade being insinuated externally to the os uteri, and internally to the bladder, should pierce the peritoneal process, investing the fundus of both, and run riot in the region of the intestines. Impossible, you exclaim, if you make the index finger of the left hand the pilot for conducting the instrument. Quite possible, I assert, as was once demonstrated at a post-mortem to Drs. Keiller, Zeigler, and myself, the catastrophe having occurred in the hands of a really intelligent young gentleman.

With the hand there is no such risk. The vaginal avenue conducts into the large uterine cul-de-sac, the calibre of the fingers precluding an admission into the abdominal cavity by the course referred to.

Methinks I hear an opponent exclaim, The train of events is not quite so propitious as you represent it. Allowing that with a pulsating cord and unbroken arms you produce the trunk, it is but a mere inversion of the order of difficulties. We of the forceps school direct our first effort to the extraction of the impacted or incarcerated head. You prefer making it the last measure; it alone constitutes the obstacle in delivery, and in either case physical force on the part of the accoucheur is imperatively necessary.

Let me afford the objector all the weight that his argument deserves, its essence being, that under every circumstance a head inadequate to the dimensions of the pelvis occupies a position above it. The forceps by causing an imbrication of the frontal, parietal, and occipital bones, reduces the head to dimensions exhibited by the closed blades, quite irrespective of its capacity of diminution to a greater extent, and preclusive of all possibility of the cranium adapting itself, in making the exit, to peculiarities in the pelvic shape. It matters not whether the pelvis be infundibuliform, oval, cordate, or laterally capacious, the unvarying ellipse of the blades is compelled "vi et armis" to run the gauntlet of obstructions.

Instead of compliance with an arbitrary law, delivery by turning is merely an artificial accomplishment of the suggestion of nature, who, with the view of obviating the impediment, assumes every available space to force the pliant cranial bones into while expediting their passage.

Who has not felt the parietal within the pelvis yielding and springing on pressure, like the side of a tin can? Or, who has not heard the exclamation of astonishment from assembled relatives at the length of an infant's head, the product of a protracted primiparal accouchement, a length out of all symmetry, and attributable to the elongated condition of the bones, and not merely the caput succedaneum? A short time rectifies the evil, the cranium reverts to the contour possessed before subjection to the ordeal of labour, and which it had only abandoned to pass through the pelvis.

Again, if the maternal tissues could be insured from injury in the operation, the forceps possesses a power of leverage admirably adapted for the removal of an impacted head. But civilised midwifery ignores such an application, for the objection which applied to, and almost rendered the vectis obsolete, bears here with double force, inasmuch that in the case of the vectis, one side of the pelvis becomes alone the fulcrum. In that case either blade of the forceps would be alternately used. The forceps, however, possesses a twofold legitimate function, a power of traction and ability to oscillate the head between the sacro-iliac synchondrosis and the obturator foramen.

With regard to the former, natural philosophy emphatically denies that the force in traction is increased in the ratio of the distance, the principle of leverage is excluded in this case. The muscular power of the practitioner antagonised by the resisting head, is neither increased nor diminished by the intervention of instruments.

In the rival operation of turning we can at all times increase the forceps traction in a double proportion, by enlisting the services of an assistant at the limbs of the infant, while your own efforts are directed to the liberation of the arms, protection of the cord, and oscillation of the head by the aid of the finger in the mouth.

But some one may sceptically exclaim, Dare you exhibit the power of two athletic men on so frail a structure as the body of an infant, without risk of decapitation, that calamity of which the older writers in obstetrics have given so many instances? I reply, that though the circumstances involving the necessity be rare, you may exercise such force with impunity. I have seen some of the most judicious men, inclusive of Simpson, exercise it without injury to mother or child. And, while I avoid a breach of professional courtesy, by not treating the cases of Denman and the authorities of his age as purely apocryphal, I meet the difficulty by asserting that the art of procreation is keeping pace with the advancement of science in the nineteenth century. Our children's necks are more substantial in character than those of our ancestors, a fact which any one may verify by experiment, if he try the amount of force requisite to dislocate the neck of a still-born infant.

In one respect, I think all practitioners will coincide with me, viz. that chloroform to complete anæsthesia is only indicated till the forceps is attached or the infant inverted, subsequently to which events a state of semi-consciousness is preferred, inasmuch as it renews the uterine action suspended by the perfect influence of the anæsthetic.

We may form a just idea of the value of this immutual ally, by considering the amount of exertion we have been called on to expend in the removal of a head from its confinement between the tuberosities of the ischia, by the aid of a forceps of medium power. Yet the uterus alone would have effected the expulsion, by the effort of two or three hours duration.

In what degree, then, it may be inquired, is either operation assisted by the vis a tergo of uterine contraction? The information is at once afforded by considering the rationale of production in an ordinary unassisted labour. The uterus at first contracts at intervals of half-hours, and with a single faint impulse. Why? Because it resembles a hand attempting to grasp a ball too large for its compass or constriction. The whole of the vigour of the organ is diffused over the membranes, distended with liquor amnii, and the included fœtus, and its power is consequently less manifest.

Matters, however, improve with the lapse of a couple of hours. The contractions occur at intervals of four minutes, and with a double impulse. Why? Because the head has descended into the cavity of the pelvis, and the efforts of the uterus are solely appropriated by the trunk, which remains within its circumference: thus proving that the power of the organ is in proportion to the bulk of the object on which it acts. In extraction by forceps we secure the assistance of the uterus by an equal diffusion of its power over the fœtal body. In turning we have that power concentrated on the comparatively small superficies of the head, which it closely invests. Without reference to assistance artificially by forceps previous to or manual traction after turning, the uterine power in either case may be thus arithmetically stated:—If the expulsive capacity of the organ be represented by the number six, the fœtal power of resistance at the commencement of parturition being also six, the latter on a liberal calculation will have reduced one-third, on the head partially or completely entering the pelvic cavity. The expelling agency will then rate at six against four, two-thirds of the original resistance. But if the body of the fœtus be external to the uterus, and the head alone within its cavity we have an arithmetical as well as a physical inversion of circumstances. The expelling influence will still be six, but the object of resistance two.

It is almost superfluous to attempt proving that the uterus reduces its dimensions and increases its functional power in the proportion of the child's expulsion. Every student who has watched its gradual declension from the central point, between the scrobiculus cordis and umbilicus, the locality of the fundus at the commencement of labour, will testify to the latter. And every practitioner who has introduced his hand for the removal of an adherent placenta will testify to the latter, from his recollection of the firm pressure of the cervix on his forearm, which, like a tourniquet, rendered torpid the nerves of the hand and congested the part by arresting the venous circulation.

We repeat, then, the question, how far does this uterine power assist an artificial delivery? In a forceps case it does so imperceptibly. In case of version most evidently; I append one out of many instances of experience.

In company with another medical man I obeyed the summons of a midwife to a case three miles distant from my home, a contracted pelvic brim had set her at defiance. We placed the patient under complete anæsthesia, turned the infant with ease, and extracted all but the impacted head. We pulled alternately and pulled conjointly without progressing in any appreciable degree. To my horror my companion announced the exhaustion of the chloroform, under which the patient during our efforts had insensibly slumbered: consciousness was gradually established, and with it her uterine contractions, the second of which with very little co-operation on my part completed the expulsion. The ideal danger of rupture is another conjuration of the professional mind with regard to this operation. The uterus is sometimes ruptured, so is the heart, and their organs present many points of similitude. But the heart never ruptures, save when there is something morbidly abnormal in its structure; neither does the uterus.

When consulted respecting the gymnastic performances of some young Titan, who for three months antecedently to his exit threatens the perforation of his mother's sides, and banishes sleep from her eyelids, do we ever dream that the uterine parietes will prove inadequate to the retention of their charge, though elbows, knees, head, and nates consecutively effected the assault? I fancy not: but yet with marvellous inconsistency we predict rupture as the calamitous consequence of artificial fœtal evolution, the most gentle process in the whole catalogue of midwifery tactics, one that I have sometimes performed without anæsthetics, and without eliciting from the patient a single intimation of pain.

The impropriety of introducing the hand into the uterus was vividly and early impressed on my imagination by my instructors. But how in consistence with reason do they define the danger? Is it that the introduction of a foreign body, in which light we will view the hand, interferes with an organic function requiring instant performance, as in the air-passages, or circulatory apparatus? Experience says not. The uterine function may be suspended without injury, and in its state of quiescence the introduction takes place. Is it that the passage of the hand by the side of the head, as it lies *in situ* within a well-dilated os uteri, would effect a perilous laceration of the latter from its inability to expand? Experience says not. In the normal progress of the labour it must assume a circumference double the one it now exhibits to emit the fœtus, Is it, that the extreme sensitiveness of the locality would render it liable to lesion in the act? Experience says not. No other organ but the heart presents such a contrast between its powerful action and its nervous supply, almost inducing the opinion that it owes its function to some other besides a nervous source. In the absence of chloroform some little pain might be experienced in the passage of the vagina and os, but the interior of the uterus is as torpid to manipulation as the cavity of a gutta-percha bottle. The muscular structure and internal aspect of the gravid uterus may, in one sense, be designated the connecting link between the maternal and fœtal organisations, though I confess its relationship to the former to be of course closer than to the latter; yet, hemorrhage excepted, I believe the mother's system to be as free from liability to shock on manipulation or abrasion of the internal surface of the uterine cavity as from injury to the fœtal portion of the placenta. This opinion is corroborated by the consideration of the natural progress of events in unassisted labour. How rarely is the structure of the organ or its lining membrane injured by the violent and incessant efforts of twelve hours duration! The peritoneal investment, the abdominal or lumbar muscles may suffer derangement, varying from simple pain to active inflammation. Decomposing animal matter may lie in contact with its internal surface, and by absorption into the circulation, produce ruinous results in distant localities. But a post-mortem examination of the uterus itself after a death from any of these agencies, precents no appreciable morbid peculiarity. Metritis is an extremely rare disease.

[In the extraction of a child by the feet, it is astonishing what force may be used without injuring the child. But we should advise that each limb should be surrounded by a fold of the napkin, and that extraction be made with the limbs thus well padded. The bare hand of the surgeon is not a good instrument.]

[Dr. Figg relates a case which remarkably illustrates his views :]

The sudden illness of a medical man, placed me as his substitute, by the bedside of a parturient patient, where for the twenty-four hours previously he had been stationed. The waters had long escaped, the swollen scalp bent low between the sacral promontory and symphisis, above which, notwithstanding vigorous uterine effort, the cranium itself was incarcerated ; and to darken the prospect I was informed of her delivery by perforation on three previous occasions. I at once applied the substantial long forceps left by my predecessor, and for twenty minutes the patient's frame vibrated under all the strength I could enlist on the occasion. From a conviction of absolute failure I desisted, and despatching a request for Dr. Simpson's attendance, inactively awaited his arrival. *Ad interim* a third party appeared, Dr. P., a gentleman called in by one of the officious relatives, without consulting me or informing him of my possession of the superintendence. We compromised the matter by acting conjointly, that is to say, we postponed all measures until Dr. Simpson's arrival, with whom a deliberation was held as to further procedure. Dr. P., an accomplished midwife, thought the long forceps indicated ; I, from the fact of my recent discomfiture, deemed them inadequate to the emergency. Dr. Simpson, without affording a decisive opinion as to the practicability of delivery by the long forceps, preferred turning. However, Dr. P., at the Professor's request, attached the instruments a second time, and worried the patient, secundem artem, for some minutes ; when, concluding the resistance insurmountable by that means, he agreed to an attempt by Dr. Simpson's alternative of turning.

The patient was placed under chloroform, the infant was turned and delivered by Dr. Simpson in about four minutes, crying vociferously a minute or two after.

The triumphant termination of this case imperatively demanded a verdict in favour of version, and naturally suggested to me the following query on the following premises.—If delivery could be effected so rapidly, easily, and safely, under such formidable circumstances, how much more easily, safely, and rapidly, could it take place by the same means under normal circumstances ?

With so many excellent manuals of midwifery in the hands of the profession, it would appear almost impertinent of me to offer my observations as to the mode of carrying this measure into execution ; however, for the benefit of my junior brethren I will offer a few directions.

Place the patient on her left side transversely in the bed, so that her body form an angle of 45 degrees with the longitude of the bed, over the side of which let her nates nearly protrude, whilst her knees are drawn up in the direction of the abdomen. Let the covering be a single blanket or sheet ; two or three pillows may be placed under the head, while a hot and cold water bath ready for the infant are in close vicinity. Never attempt the operation till the os uteri acquire the diameter of three inches, nor defer it till it ceases to be tangible in its whole circumference to the examining finger. Avoid, if possible, rupturing the membranes, but do not imagine the version impracticable if they be ruptured. Administer chloroform to perfect anæsthesia. Place an assistant sitting in the concavity formed by the flexure of the patient's body, desiring her to elevate the right knee. Throw off your coat, and anoint the arm and back of the right hand, avoiding the palm. Throw the fingers of the right hand into the form of a cone, introduce them in the axis of the pelvis outlet, not being deterred, if in the case of a primipara, this require a little force, pass them internally to the posterior uterine lip, and into the cavity of the uterus. Grasp the feet, cotemporaneously with which you must of necessity rupture the membranes. In doing this the feet must be carefully discerned from the hands of the fœtus, and seized, by passing the heels between your fingers.

Should you by mistake bring down an arm, do not esteem it of any consequence, but repeat your search for the feet ; draw them in close vicinity to the child's abdomen, and thus throw up its arms and head tangent to the uterine fundus, while the feet enter the pelvis.

The left hand may be now employed on one leg, while the right acts on the other, drawing the infant's body in the direction of the mother's rectum, in effecting which a towel placed between your hands and the child's limbs will afford a firmer attachment. If the child originally present with its face towards either synchondrosis, which will be the case in seventy per cent. of parturient patients, the evolution will, of course, transform it into a pubic presentation, a circumstance of no material consequence, as you can turn it the quarter circle to the right or left, into the first or second Naegele, when the body is drawn down till the os encircle the axillæ and chest of the infant, its arms being at this stage tangent to the side of the head in the uterine longitudinal axis. Having turned the face posteriorly, when required resume traction till you experience a sense of resistance to a tolerable amount of effort on your part. Now gently draw down two or three inches of the cord; hook the fore-finger of your right hand over the infant's arm lying posteriorly to the right ramus of the maternal pubes, carry it to the bend of the elbow, and press the arm down perpendicularly to the side and external to the vagina.

Repeat the measure with the other arm; encircle the cord without pressure beneath the thumb and fingers of the left hand: carrying the same hand into the vagina, and placing the fore-finger in the infant's mouth, therewith press the chin close to the sternum, at the same time exercising traction in the direction of the mother's rectum, with the right hand spanning the child's loins. If the resistance require a greater amount of traction than this attachment affords. encircle the neck with a towel, the ends of which grasped opposite the breast will form a better hold.

When, however, the head has reached the floor of the pelvis, bring the body of the infant directly forward, between the femora of the mother, turning the face downward, and clearing the vagina.

If you experience any difficulty in bringing down the arm next the maternal pubes, at once attempt the extraction of the posterior one.

If that be also immovable, pull the child's body laterally in the direction of the mother's right acetabulum, thus causing a depression of the arm adjoining the sacro-iliac synchondrosis, and placing it within your reach. A relaxed undilatable os uteri, with thickened edges, frequently accompanied with flooding, ante partum, is a more serious obstacle than ordinarily contracted pelvic passage. For if you succeed in introducing the hand and turning the child, the os encompasses the neck, and confines the head with almost the same tenacity that the capsular ligament exercises over the head of the femur.

I am not aware of any remedy instantaneously counteracting this evil, which imparts considerable tedium to the delivery, presenting, however, one redeeming trait, viz., if the os and cervix be defective of tone, there is no pressure on the cord, and therefore little risk to the infant.

It may occur that on introduction of the hand into the uterus, one foot only may be within reach, the opposite leg being in all probability ligatured by two or three circles of the cord, and thus maintained perpendicularly parallel to the long axis of the womb, instead of the flexed position favourable for the operation.

The first attempt to secure both feet proving abortive, do not waste your time by further efforts, but proceed in accordance with previous directions with the single foot, when the traction will cause a rotation and version of the fœtal body, and consequently the liberation of the opposite one, which can then be easily extracted.

Perhaps neither feet are tangible; the near leg being encircled with the cord, the distant one is beyond reach. Or the fœtus may present in the third Naegele, forming the curvature of its body anteriorly. The cause of difficulty is immaterial, the mode of rectification being the same, viz., making the fœtus to revolve like a wheel on its own axis, and when the segment of a circle is effected, the feet will fall within reach. The instant the infant is secured, remove the placenta, and press externally over the uterus.

In the greater proportion of cases, I have found it partially detached, and consequently effusing blood from the lacerated vessels along the line where its uterine adherence remained. It may have been forcibly removed by contact with the child's body in the act of turning. It may have been acted on by the tension of the cord. Whatever the cause, the precaution of early removal obviates the danger.

With regard to the children they are generally still from two to five minutes, and in some cases half-an-hour's duration. In many instances the first arm brought down is a little painful when moved for a day or two. I confess with humility that I have even broken four arms, which, though they occurred in cases of great pelvic contraction, were attributable to my own mismanagement in pressing over the shaft of the os humeri instead of following its line to the elbow. Should you commit the same error, with similar result, be not too candid to the relatives, but at once by your dictum transubstantiate the injury into a slight sprain received by the infant striking his shoulder against the backbone of the mother while actively prosecuting his uterine gambols. It will pass current, more especially if you appeal to her experience, when it is sure to be corroborated by a quotation of the day and hour of occurrence. Two slips of pasteboard applied, with a strip of calico a yard long, remedies the evil in ten days.

In establishing a comparison between the advantages derivable from turning in primiparæ and multiparæ, I believe there is a preponderance of argument in favour of the former. In a primipara the os uteri is more in the axis of the pelvic brim, the body of the organ being more inclined to the perpendicular, and not projecting anteriorly, as in the frequent parturient; hence, in the former case, the uterine efforts of the last month previously to labour lodge the os and cervix inclusive of the head low in the cavity of the pelvis, not only assuring the practitioner by tangible proofs of the perfect capacity of the brim, but also presenting the best arrangement for the co-operation of the uterus with his extractive efforts. In the latter case from the yielding of the abdominal muscles in former labours, the fundus bearing forwards, throws the os in the direction of the spine, rather than the pelvic cavity. Hence until the contraction of these muscles in some measure restore the proper axis, no advance can take place.

The advantage in the second particular is briefly explained, by stating that in a primipara the antagonistic force is directly in line with the extractive. In a multipara it is entrenched round a corner.

Again, in a primiparal case you have good grounds for the conviction that, in obviating the perineal stage, you limit the labour considerably; while in the latter patient an hour's suffering might conclude the case.

Be they right or wrong these are the sentiments which have guided my conduct at a large majority of my cases latterly, experience appearing to justify in happy results what theory dictated on sound reasoning. I hope I shall soon lose all mental impressions of a head lingering on the perineum, or stationary from failing pains for hours. My primiparal patients are up in four days without swelling of the vaginal muscles, nymphæ or labia; and what to me is perfectly unaccountable, with very slight laceration of the perineum.

I have had but one maternal death where the infant was turned, and that occurred five days after the event, by inflammation of the peritoneum of a patient, who, with contracted pelvis, had submitted to the ordeal to produce her sixth full-timed dead child.

If I be entitled to any credit at all, it is for the candid avowal of a practice, that some under fear of professional censure, would have adhered to but concealed.

The operation was ancient, but nearly obsolete, and its revival by Dr. Simpson in particular circumstances, led to my adoption of it in general cases.

P.S. Since writing the above observations some months ago, I have attended sixty labours, three of which alone have been conducted as head presentations. Of the remainder two were breech presentations, and the other fifty-five were conducted according to the principles advocated in the above communication, viz., the children were all delivered by turning.—*Med. Times and Gaz., Nov.* 13 *and* 20, 1858, *pp.* 493, 522.

[One great objection to this practice, as a rule, would be the danger to the child. It could only be justified in severe cases of obstruction at the brim of the pelvis; and, in these cases, we think Dr. Simpson's views are correct.

Both Dr. Robert Lee and Dr. Ramsbotham seem to be very much against Dr. Simpson's views. The opinions of these eminent men must always have great weight. We agree with Dr. Simpson, but dissent from Dr. Figg's views, which we think dangerous, and the practice uncalled for.

Dr. RAMSBOTHAM in the following letter to Dr. Robert Lee, expresses his opinions upon the practice inculcated by Dr. Figg in the preceding paper. He says:]

That paper in my mind resolves itself into two points each of the utmost importance in obstetric surgery: the first, the propriety of turning the child, in cases of deformed pelvis, instead of delivering it by the forceps, or by craniotomy, or inducing premature labour—that to which indeed you have particularly called my attention; the other (which you have not noticed in your note to me) the turning and delivering by the feet every child, though presenting naturally by its head, even although the patient possess a pelvis of ordinary size, and whether she be bearing a child for the first time, or have had a family before.

My opinion on the first of these cases has already been clearly expressed in each of the four editions of my work on 'Obstetric Medicine.' My words are: "I cannot find language sufficiently strong in which to deprecate this mode of proceeding as a general principle;" and in the last two editions, I have given my reasons for this anathema at length; having been induced to do so by Dr. Simpson's then recent advocacy of the practice.

The second kind of case I have adverted to has received no notice from me, because I never dreamed that any man in his senses would have the hardihood to recommend that all natural cases should be artificially converted into footling cases, or to announce that such an interference with nature's ordinances had become in his practice an established rule. Dr. Figg tells us that since he penned his paper, some months before its publication, he had attended sixty labours, of which three only were conducted as head presentations. Of these cases, in two instances the breech presented; the remainder, fifty-five in number, were head presentations; and all these children were delivered by turning. He acknowledges that the children thus officiously dragged into the world, are generally still for from two to five minutes after their birth, and sometimes for half-an-hour; and he confesses also to have broken an infant's arm four times during its extraction.

The practice advocated by Dr. Figg appears to me so mischievous and dangerous in its tendency, that I consider you will be doing a service to the cause of humanity, if you will notice it publicly with that reprobation which I am convinced, you, in common with all well-judging obstetricians must entertain towards it.

[Dr. Figg's opinions have been severely commented upon by various writers in the journals, with many of whose views we agree. We think it only right, however, that he should have the advantage of any opinions given in his favour. Mr. W. H. Borham writes as follows:]

In publishing my opinions and practice on version as an accoucheur to the profession, particularly as they bear out, and agree with the obstetric experience of Dr. Figg, as published in his papers in the 'Medical Times' of November 13th and 20th, I am prepared to encounter the frowns of the aristocracy of accoucheurs, as now constituted in London, nay, to be considered as inculcating "atrocious" doctrines bordering on "insanity," or perhaps may be "practising a hoax," or that my mode may be "corrupt" and "cruel," or "revolting," to the refined experience of obstetricians; but notwithstanding all this, I am prepared to establish by practical experience, that most of the doctrines inculcated by Dr. Figg are not to be entirely disregarded in certain cases. In giving these my views, I have a firm conviction in their being tenable and right, as much so as those of Dr. Figg's opponents; and with all due courtesy to my talented and respected examiner, Dr. Oldham, I must beg to be at issue with his opinions on the subject of Dr. Figg's paper. The case in which I first performed turning, was one of that very rare form of labour complicated with a vaginal cystocele, when the vagina and bladder protruded from the os externum like an adult male testicle. (Dr. Lever, I think, only mentions one case in 33,000.) By this prolapsus the head was prevented descending; it would have been imprudent to have used traction with the forceps, as probably a vesico-vaginal fistula would have been the result; so I decided upon turning, by which means, I was enabled to replace the protruding bladder, while revolving the child to a footling case. The mother and child did well, she has since been attended by me in a natural labour. This case occurred about three years ago; and the facility by which it was accomplished led me to resort more frequently to the practice of version.

The next cases I have had are those of placenta prævia, arm, epigastric, or dorsal presentations. Turning in these cases requires no comment. Then come those of the natural presentation, with limited contraction of the pelvis; here I have turned six times, with the loss of only one child. And now lastly, I come to those cases which bear more immediately upon the subject, viz. such as have the head presenting, and where the labour is protracted beyond the usual time, either by a want of the expulsive uterine power, or by an increased resistance from some mechanical cause.

In such cases I have turned twenty-five times, all successfully, and without losing a single child. There was, of course, as little time as possible allowed to intervene after the feet were secured till the full delivery of the child.

I have experienced no difficulty in turning the above cases, and the mothers have not complained of much pain; my hand and arm are not large. Some were primiparæ, some multiparæ. The capacity of the pelvis, as adapted for the exit of the head, can be easily ascertained by the hand when in the uterus; and the decapitation of the child by force as mentioned by Dr. Hancox, could be easily prevented by this ordinary precaution.

I might here mention that I have never given chloroform in any case; and for the last seven years never a dose of ergot. During this period I have attended about 1800 cases, and three only of the mothers have died, one lately from puerperal fever, one from flooding after version in a case of placenta previa, and the other from scarlet fever a few days after delivery.—*Med. Times and Gazette, Nov. 27, and Dec.* 25, 1858, *pp.* 561, 665.

154.—*Turning in Natural Labour.* By Dr. H. Hancox, Wolverhampton.—On reading over the paper 'On Delivery of the Child,' &c., by Dr. Figg, I at one time entertained the same opinion as that gentleman, that "two athletic men" would have some difficulty to pull the body from the head of an infant; but during the last few weeks, I am sorry to say my opinion has been changed, in consequence of a surgeon, who after making a natural presentation into a preternatural one, endeavoured to deliver the head, both by manual efforts and by means of the vectis, when the body separated from the head, leaving the latter undelivered, in which condition the poor woman lingered for nearly two days, when death put a stop to her sufferings. This case I think will not bear out Dr. Figg's theory, "that the act of procreation is keeping pace with the advancement of science in the nineteenth century." I should be inclined to think, judging from this case, that science is not keeping pace with the advancement of procreation, and also that the neck of this child could not have been any "more substantial in character than those of our ancestors," by which Dr. Figg meets the difficulty of the cases, similar to the above, related by Denman,—or if the contrary, the amount of force used in this instance by the disciple of Æsculapius was more powerful and rash than justifiable.—*Med. Times and Gazette, Dec.* 4, 1858, *p.* 587.

155.—*Turning* versus *Craniotomy.* By Dr. T. H. Wardleworth Lowestoft.—During my stay with a medical practitioner of Rochdale, I was requested, during his absence from home, to attend a Mrs. S., who lived about two miles in the country. On my arrival, I found her in labour with her seventh child. To my surprise and astonishment, on inquiry, I was informed that craniotomy had been performed in all her previous labours by that gentleman. On an examination per vaginam, I found a foot presenting, and that the promontory of the sacrum lessened to some considerable extent the antero-posterior diameter of the pelvis. I experienced no difficulty in the extraction of the head, the chin being well pressed on the chest. A fine child was born alive; they both did well.

Two years afterwards I was summoned again to attend Mrs. S. On examination, I found the head presenting above the pelvic brim, os uteri fully dilated, membranes unruptured. From the facility with which I succeeded in her previous confinement, I unhesitatingly determined to turn, which I did without much difficulty, and delivered her of another living child. Mother and child did well.

In all subsequent cases which have come under my notice during the past twenty years of a like character, I have always adopted the same practice, with the most satisfactory results. This practice is only applicable when the os uteri is dilated or dilatable, and the membranes intact. If the membranes are ruptured, the fœtal head advancing to fill the pelvic cavity, to turn, under these circumstances, would be attended with considerable difficulty, and danger to both mother and child. In all cases where the antero-posterior diameter of the pelvis is only three inches or even two inches and a half, I would, if the os uteri were fully dilated, and membranes unruptured, prefer to turn, and take advantage of one of the diagonal diameters, rather than allow the head of the child to become impacted in the distorted bony cavity. Even should the head become impacted, there would be no greater difficulty in extracting it after the perforator had been used than if the vertex had been the presenting part. I am satisfied, from ample experience, that more lives would be saved by turning in such cases, and also that the soft parts of the mother would be less liable to injury.—*Lancet, March* 5, 1859, *p.* 251.

156.—*Podalic Version.* By T. M. Parrott, Esq., Stamford-le Hope.—Is it a fact that the head passes more easily through the pelvis when extracted last? The following is a case in point :]

I was requested to attend Mrs. A., in what I believed to be her first confinement. I had not been in attendance many minutes, however, before I was informed that craniotomy was resorted to at both her previous labours on account of deformity of the pelvis. On examination, I found an arm presenting, and, without much difficulty, turned and delivered her of a very fine living child. Some time after, she again became pregnant, and was attended by a practitioner in London. The presentation was natural, and the head was again perforated. Had she been under my care on the last occasion, I should have taken the hint, and turned, whatever the presentation might have been.

This case will, in some measure, prove that the head may be dragged through a moderately deformed pelvis—one through which the uterine contractions could not force it with perfect safety to the child.—*Laucet, Feb.* 26, 1859, *p.* 219.

157.—*On Rigidity of the Os Uteri in Labour, Menstruation during Pregnancy, &c.* By Dr. J. Henry Bennet.—In the interesting essay of Dr. Gilmour, 'On Rigidity of the Os Uteri during Labour,' published in a recent number of the Lancet, the causes and conditions usually admitted by accoucheurs are carefully enumerated. Dr. Gilmour has, however, omitted to mention a cause hitherto unnoticed, to which I drew the attention of the profession many years ago—viz., induration and hypertrophy of the cervix uteri, the result of chronic inflammatory disease. I then stated that I believed this pathological condition to be in reality the most frequent cause of rigidity of the os during labour, and subsequent experience has confirmed this view.

Inflammatory induration of the neck of the uterus is now universally acknowledged to be of frequent occurrence in child-bearing women, and would, even more frequently than is actually the case, be the origin of rigidity in labour, were it not that, as pregnancy advances, the morbid induration usually softens. It would seem that the nutritive changes which so profoundly modify the structure of the healthy uterus during pregnancy extend to the indurated hypertrophied tissues of the neck, and thus prepare them for the final dilatation. Should, however, this softening not have thoroughly taken place when labour commences, we have, as a necessary sequela, rigidity of the os and cervix.

The practical deductions which may be drawn from this important pathological fact are twofold: Firstly, as the existence of inflammatory induration of the cervix may, in cases of pregnancy, prove a serious complication to labour, it ought to be treated and removed on this ground as well as on others; secondly, whenever decided rigidity complicates a labour, we may suspect the pre-existence of cervical disease; and, on the recovery of the patient—say six weeks after the confinement, the condition of uterine organs should be ascertained, and, if any disease is discovered, it should be treated and removed. I may add, that the treatment of rigidity of the os during labour, from chronic inflammatory disease, is the same as that of rigidity from other causes. Patience and time are, however, still more necessary. Tissues indurated by chronic inflammation must dilate slowly and painfully.—*Lancet, Dec.* 11, 1858, *p.* 618.

158.—CASE OF PLACENTA PRÆVIA.

By Charles P. Stevens, Esq., Biggleswade.

[In this case the full term of gestation was expired, slight pains attended with profuse hemorrhage were occurring about every ten minutes. The os was dilated about the size of a florin, and the placenta was centrally presenting, and the posterior portion was partly detached from the cervix. This was the state of the case when first seen by Mr. Stevens. The vagina was then plugged with lint, saturated with cold vinegar and water, and napkins dipped in cold water were applied to the vulva.]

Six hours afterwards, at 8 p.m., I removed the napkins: there was no hemorrhage. I administered a stimulant, and proceeded to remove the plug. Little or no hemorrhage occurred, and very few small coagula followed. The os uteri was now dilated to the size of a small teacup, and very dilatable; the whole circumference was covered with placenta. I then adopted Dr. Barnes's method, by separating the *whole* circumference of the placenta from its uterine attachment as high up as I could reach with my index and middle fingers, having found it necessary to pass my hand gently into the vagina, from the os being highly situated. I did not resort to the plug after this, but waited. Pains continued regularly; there was no more hemorrhage. On my next examination, I felt a portion of the posterior part of the placenta protruding through the os. I then felt for the presentation, but could not detect it until, by further separating the posterior portion of the placenta, I reached the membranes, and found it a footling case. I then immediately ruptured the membranes (a great quantity of liquor amnii escaping); and, pushing the posterior part of the placenta towards the anterior surface of the uterine cavity, I succeeded in seizing one foot, which proved to be the right; and with gentle traction secured it at the external orifice, though with the toes to the mother's abdomen. The strength of the mother and her good pulse induced me to attempt to save the child by delivering with one foot, as recommended by a certain high authority. Pains continued regularly; and, gentle traction being used, I gradually rectified the position of the child *in utero*, by rotating the thighs and pelvis so as to bring the toes towards the sacrum of the mother. Presently, the breech and the other leg were delivered: the umbilical cord still pulsated, and I, acting a little more briskly, the trunk, arms, and shoulders, were expelled, and, by depressing the chin and elevating the occiput, the head quickly followed, quite unattended with any amount of hemorrhage. During this period, external pressure was kept up. The child sobbed slightly; and, on pursuing Dr. Marshall Hall's for resuscitation, it very soon gave auricular demonstration that it was alive: I then separated the funis. The mother's pulse flagging, I administered another small quantity of brandy; and, on passing my finger along the funis, I found the placenta detached, and lying in the vagina. By moderate traction, and making her use slight expulsive efforts, it came away with the membranes entire, and little or no hemorrhage. On removing a few coagula from the vagina, I found the mouth of the uterus firmly and securely closed. The placenta was of the usual size; about a fourth of its maternal surface was dark coloured, with clots adhering, indicating where premature separation had taken place. I then proceeded to bind up the abdomen, and administered a drachm of tincture of opium, and left her to repose. In an hour's time, she complained of feeling faint. I administered a dose of ether and sal volatile, and saw her again before I left, when she was comfortable.

Remarks.—By the use of the plug in the first instance, to gain time for more full dilatation, and then employing the means recommended by Dr. Barnes, there was much less hemorrhage than I have witnessed in most cases of ordinary labours. The loss from the introduction of the plug to the completion of the labour, I can assert did not exceed eight ounces, if so much.—*Brit. Med. Journal, March* 26, 1859, *p.* 244.

159.—IRON-THREAD SUTURES AND SPLINTS IN VESICO-VAGINAL FISTULÆ.

By Dr. J. Y. Simpson, F.R.S.E., &c., Edinburgh.

[Dr. Bozeman's plan of operating in Vesico-Vaginal Fistulæ is on the well known button principle introduced by him, and on this Professor Simpson introduces an improvement which is explained in the following article. He has lately operated on five cases of vesico-vaginal fistula.]

In the first of these five cases I operated on Dr. Bozeman's plan, and with Dr. Bozeman's own set of instruments. The fistula required five sutures. The wound united opposite four of these sutures; but gave way early opposite the middle suture of the five. At the time of operating I was quite aware that the lead crotchet or pellet fixing the wire was not applied accurately, because it slipped obliquely when I compressed it with the forceps used for the purpose, an accident no doubt attributable to my own clumsiness. But as this mischance with the crotchet or pellet could not be rectified without cutting out and replacing this suture and the two already fixed, I thought it best at the time (perhaps erroneously) to go on fixing the two remaining threads under the hope they would prove sufficient to close the lips of the wound. Betimes, however, urine escaped opposite this middle thread, and a small fistula still remains, which I hope to close at another operation.

In the second case, a patient of Dr. Brown's of Melrose, I operated in the country with comparatively imperfect instruments; but the result was entirely successful. The fistula was of twenty-nine years' standing. The patient now retains and passes her urine as well as ever. In this case I used a lead shield or button on Dr. Bozeman's principle, but with this difference, that instead of boring one set of holes in the shield, I bored two, leaving thus as it were a bar in the middle line between the two set of parallel holes. I tied the sutures with a common knot over this bar.

The next two cases were also perfectly successful at the first operation. In both I employed an iron-thread splint instead of Dr. Bozeman's lead button. Of these, the third in this series was a case where the fistula was of 12 years' duration.

The fourth case was an instance of an operation on a patient 64 years of age. She had been the subject of fistula for thirty-two years. As in the two preceding cases, the fistula was perfectly closed, and the patient quite cured by the first operation.

I operated on the fifth case only eight days ago, so that it is too early to know the final result; but as yet all the urine has passed by the urethra. In this case the aperture was very large, a great part of the vesico-vaginal septum being wanting. One stitch touched the cervix uteri above, and was introduced alongside of the urethra below. The bladder protruded in an inverted form so much and largely through the fistula as greatly to impede the performance of the operation.

In all of these cases I have used the common blue iron-wire (No. 32 of the wire-measurer's gauge) as the suture-thread. It is stronger, cheaper, and altogether more easily worked with than silver-wire.

In the last three cases I have placed and fixed around the wound, for the purpose of steadying and consolidating its walls, a slender oval splint made of the same iron-wire as the sutures are formed of. The vesico-vaginal septum is a very mobile wall or structure, with muscular tissue in it, which, in some cases, after the operation, is constantly attempting to act, as seen in the twisting, and sometimes in the expulsion of the curved catheter of Dr. Sims. Hence it has appeared to me always a matter of high moment, as regards the success of this operation, to have some means of preventing the lips of the wound being moved by these muscular contractions in the vesical walls; or, in other words, to have some means of consolidating, as it were, for the time being, the edges of the wound, and the parts situated more immediately around it. A simple stitch or suture, or a series of them, is liable to allow the wound slightly to gape under any movements in its edges. If you will try the experiment upon an opening cut in a piece of thickish leather or the like, and closed by simple stitches, you will see the truth of this remark, if you afterwards move the edges of the opening in imitation of the muscular contractions of the bladder. Dr. Bozeman's ingenious button-suture effectually prevents the disturbing effect of such movements lengthways, in the longitudinal direction of the wound. But it has no power to prevent the evil effects of such movements if they occur crossways, or transversely to the direction of the wound. The structures on which the sides of his button or shield are placed are not restrained from movement by the presence of the button; and may (as I saw in the second case) move quite away from it, so far endangering the reopening of the lips of the wound by the mobility which is thus permitted.

The slender, oval, iron-thread splint which I have employed in the last three cases, overcomes, as I fancy, this difficulty, as it so far consolidates the lips of the wound, and, indeed, all the parts included within the oval space, as to prevent them moving or being moved, either in a longitudinal or transverse direction. It is made by twisting ten or twenty wires of the size already indicated into an oval circlet or ring, capable of including the lips of the fistula-wound, and a few lines of the vesico-vaginal septum on either side within its concavity. It may be made, of course, and that quite readily, of any special size or shape that may be required. By a common borer, two, three, four, or more small openings can be made among the wires on each side, so as to correspond to the number of sutures used. After the edges of the wound are brought together by the adjuster of Dr. Bozeman, or any corresponding instrument, the splint is fixed by passing first the iron-threads of one side of the wound, and then those of the other side, through the corresponding holes in the splint;

afterwards sliding it down along the threads to its place ; accurately fitting and adapting it there to the parts by the finger, a process which the flexibility of this light splint greatly facilitates, and ultimately fixing the sutures across it, tying or twisting them over the lower bar of this little apparatus. When duly adjusted and fastened, it appears to me to compress and consolidate the lips and immediate vicinity of the wound in a way which the plans previously proposed have not so completely effected. Besides, it is easily made, easily applied, and at last easily removed ; for by dividing the wires below its lower bar, and turning back the splint, and then withdrawing it with dressing-forceps, the suture wires come out along with it.

Permit me to add, that I have found a tubular or hollow needle very greatly to facilitate the introduction of the metallic threads. After the needle is passed through both lips of the wound, the iron-wire is pushed on through the tube or perforator in it, and seized with a pair of long forceps as it protrudes from the upper end of the needle. The needle is then withdrawn and the wire left.

Dr. Bozeman seems to think that the operation for vesico-vaginal fistula is one which is free from all risk to life. I doubt this proposition ; and my only wonder is, that more instances of complication, even of death, have not occurred after its performance. The patient and is liable from it to the dangers of pyæmia, &c., attendant upon all wounds of the pelvic organs. But there is also another source of danger in this operation, viz., the danger of infiltration of urine, with all its evil consequences, between and into the raw or suppurating lips of the wound on the vesical side, provided the internal surfaces of the lips are not completely closed, which they can scarcely in all cases be expected to be, by the sutures employed.—*Medical Times and Gazette, Dec.* 4, 1858, *p.* 585.

[Dr. Simpson, in his clinical lectures, gives us an interesting history of this subject, up to the late improvements by Dr. Bozeman. We have only room here for his remarks on the treatment, which, indeed, are the most important part of the whole subject.]

One former mode of treatment consisted in introducing a catheter into the bladder as soon as possible after the fistula had formed, and leaving it there to prevent accumulation of the urine, in the hope that in the contraction which ensued after the sloughing the fistula might close up. Cases of success from this treatment have been reported from the time of Desault downwards. But it can scarcely be expected to succeed in puerperal vesico-vaginal fistulæ except either when they are very small, or the result of cutting instruments. This simple means has apparently also succeeded in some cases in which an opening in the vesico-vaginal septum was intentionally made for the purpose of removing calculi from the urinary bladder.

Caustics and the actual cautery have long and frequently been employed, but with a success which at the best is usually only temporary. So long as the swelling of the margins produced by the application of the irritant continues, the escape of the urine may be restrained; but when this has subsided the case soon becomes as bad as ever. I have seen this treatment applied by Dr. Liston and others, and have often adopted it myself; but I never once saw it succeed in effecting a complete cure.

It has been also proposed to close vesico-vaginal fistulæ by obstructing them, for a time, with a removable plug of caoutchouc or gutta-percha applied, on the principle of the ball-valve, to their vesical opening; and again by filling them, when small, with hemp or worsted threads, and withdrawing a thread from time to time as the perforation contracted. I have perseveringly tried both of these plans in very favourable cases, but altogether without any beneficial result.

Nearly two centuries ago, in 1663, Hendrick van Roonhuyse, a practitioner of Amsterdam, whose name is connected with the history of other suggestions in operative midwifery, first proposed to cure vesico-vaginal fistulæ, on the same surgical principles as harelip—namely, by paring or vivifying the lips of the fistula, and then bringing and keeping their raw edges together with stitches of silk. But there is no evidence that Roonhuyse ever put his own proposition into practice. In the course of the last century, Voelter of Wurtemburg, and Fatio, of Basle, were the first apparently to try this operation; but both of them failed to cure their patients by it. Even the very remembrance of this method of treating vesico-vaginal fistulæ seems to have afterwards fallen into oblivion, till, in 1812, the late Professor Naegele, of Heidelberg, recalled the attention of the profession to it. I am not certain who had the good fortune first to cure a case by this means. But during the last half-century many modes of vivifying the edges of the fistula by differently shaped knives, scissors, and caustics, have been suggested and practised; many varieties of stitches employed—as the "interrupted," the "continuous," the "quilled," the "twisted" suture, &c., and many means and modes of passing these stitches or sutures have been proposed. It has been attempted even to introduce the stitches from the cavity of the bladder, as well as from the vagina. And other means than stitches have been employed to hold together the raw lips of the fistula, such as the bladed compresses or leaf-like instruments suggested by Naegele, Langier, and Lallemand. Serres fines have also been used in this way. But sutures of hemp and silk have been most commonly made use of, and some cases have been published where they were reported as successful. Jobert of Paris, and Wutzer of Bonn, who have operated in this way by paring the edges and bringing the raw surfaces into apposition with them, more frequently and with better success perhaps than any other surgeons, have effected cures only as exceptional instances; and when in Bonn, I saw Wutzer operate for the fourth time on the same patient. In Paris they still operate in this way, as I learn from a letter I had a day or two ago from Dr. Bozeman, who saw M. Robert lately close up the wound with tape. Lately, Simon of Darmstadt has reported some cases of success by using a kind of double silk suture.

The grand revolution, however, that has of late been accomplished in the success of the operation for the cure of fistula, is owing to a change in the mere material of the suture, or, in other words, owing to the introduction of metallic sutures instead of the sutures of hemp and silk, or other organic materials which were formerly employed to bring and keep the edges of the wound in apposition; and the success which attends their use is to be explained by the important general law that living tissues bear the contact of non-oxidisable metallic bodies for any length of time without being excited to take on an inflammatory action, or if such action be excited, it does not usually go beyond the stage of adhesive inflammation. We see this law in surgical pathology exemplified in those cases where bullets, small shot, needles, &c., get lodged, and remain imbedded in the tissues for many years without causing any high grade of inflammation. There was here, a few weeks ago, a noble Duke who carries in his shoulder a bullet which got lodged in his body in the time of the Peninsular war, now more than forty years ago. Silk and other organic sutures, on the contrary, produce an inflammation which soon passes on to suppuration and ulceration, or the higher grades of the inflammatory process. We see a striking proof of the different effects of the two kinds of suture in this, that formerly when silk or hempen threads were used in the operation for vesico-vaginal fistula cures were so rare and exceptional, that a successful case was boasted of as a triumph; whereas, during the last two months I have operated in four cases, using metallic sutures, and all but the first of them have been successful; and three cases of vesico-vaginal fistula cured in succession, each by one operation, was a success which we formerly never dreamt of. Dr. Marion Sims, of New York, who has in a great measure led the way in this modern revolution regarding the treatment of vesico-vaginal fistulæ, tells us that he operated twenty-nine different times on one unfortunate patient, using always threads of hemp or silk, and always without success; but that on using metallic sutures in the thirtieth operation a cure was at once effected.

Last summer I took occasion to make an extensive series of experiments upon the relative merits of metallic inorganic sutures and ligatures, and upon the relative surgical qualities of different metallic threads. These experiments were for the most part kindly performed for me by my friends Mr. Edwards, Mr. Jardine Murray, and Dr. Coghill, and the subjects of the experiments were a number of unfortunate pigs, which were always, of course, first indulged with a good dose of chloroform. We made corresponding wounds of various kinds, usually on directly opposite sides of the body, and sewed some with threads of silk, hemp, cotton, &c., and others with threads of silver, gold, platinum, lead, iron, &c. As a general result the contrast between wounds sewed with organic threads, and wounds of corresponding size and situation upon the same animal, sewed with metallic threads, was most striking and remarkable. For while the silk and other organic sutures almost invariably began to inflame and suppurate along their tract a few days after their introduction, the metallic sutures remained, as it were, quite passive in the lips of the wounds, and without exciting any appreciable inflammatory disturbance. I have seen enough of cases in the human subject to convince me that the same comparative results as a general law follow the uses of these two forms of suture in the surgery of the human body. In fact, the surgeon is almost invariably obliged to cut out a silk or other organic thread a few days after its introduction, in consequence of the suppuration and ulceration which its detention excites. You may leave, on the other hand, a metallic suture without any such consequences for weeks or months, instead of days.

Why do metallic threads not lead on to the higher degrees of inflammation, such as suppuration and ulceration, along their tracts and in their neighbourhood as organic threads do? I believe this question is to be solved by the mere fact of metallic bodies or threads lying unchanged and inert in and among the tissues with which they are in contact. If we introduce a metallic wire into a pare, it has no power of absorbing the fluids there, and lies in apposition to the tissues without irritating them. A thread of silk absorbs the fluids thrown out—lymph, or pus, or whatever else it might be—and these dead fluids remaining in the thread, and becoming decomposed, render it a small tract or nidus of putrefaction and infection. In the experiments already alluded to I repeatedly took silk threads which had been a few days in the lips of wounds in the pig, and had there produced suppuration in their tracts, and placed small portions of them in the bottom of new wounds, in the same animal. Within a day or two of severe inflammation, sometimes of a carbuncular form, appeared in the lips and sides of these new wounds, showing the acrid and morbific nature of the dead and decomposing materials absorbed by and retained within these organic threads.

What metal is best? This question has been often asked, and variously answered. Sims uses always silver wire in preference to any other. Mettauer, like Dieffenbach, operated with leaden wires. I have always used the ordinary simple and cheap blue iron-wire of the shops; and I believe it is the best. What is required is a material not readily oxidisable, and possessed of a certain degree of strength and tenacity. Now, it has been found that a certain thickness of wire, if made of lead, will sustain a weight of 1lb.; silver, 9lb.; platinum, 13lb.; iron, 26lb.; from which it will be seen that iron wire will not so readily give way as some of the others. But is it from any particular reason more irritating than these, or more likely to produce a high, and dangerous, or destructive degree of inflammation? The liability of iron to rust, or become oxidised, at once occurs to most minds as likely to impair its usefulness, and render it irritating to the tissues with which it is brought into contact. But we know that iron in some forms does not become oxidised in the body, and causes no disturbance whatever in the tissue. Needles, for instance, usually excite little or no inflammation ; and I show you here a portion of a needle removed by Mr. Murray from a child's foot, in which it had lain three years and four months without becoming in any degree roughened on the surface by rust or oxidation. And Schönbein has shown that by being submitted to certain processes, iron may be rendered what he calls "passive ;" and in this passive state it is not at all liable to become changed and oxidated. For while iron in the ordinary condition gives rise to a sort of effervescence on being introduced into strong nitric acid, of specific gravity 1·3, this phenomenon is not seen when the iron is in the "passive" state. This condition may be induced in various ways,—by passing a piece of wire through the flame of a spirit lamp, by introducing the wire into nitric acid at the same moment, and in contact with a piece which is already passive, or, as in the wire which I commonly use, by annealing, which is done, I am told, by putting the hot wire into an oil bath. The wire, then, which I always use, and which I believe to be the best, as it certainly is the cheapest, is the ordinary annealed iron wire of the shops, and of the size known as No. 32. I have by me here some specimens of iron wire coated with tin, silver, &c., as well as wires of platinum and other metals ; but not one of them fulfils any indication better than the simple annealed blue iron wire, which may be bought at any wire-worker's for a shilling a pound. Through the kindness of my esteemed friend Dr. Aveling, of Sheffield, the firm of Cockers Brothers, of that town, have lately manufactured an iron wire for surgical purposes, drawn out of the finest procurable material, and in this respect superior to the common iron thread I have always used.

Before explaining the details of the operation for the cure of vesico-vaginal fistula, allow me to observe that you must choose a bright, clear day for it, and have the patient placed well exposed to the light. It is an operation for a sunny summer, rather than for a bleak November day, as you must have abundance of light sent along the speculum to enable you to guide your knife and needles correctly and safely. When operating on a patient some days ago, the light was sometimes so obscured by heavy passing clouds, that I was obliged at times to desist ; and particularly if one of these clouds came athwart the sky after the needle had been passed, I found it quite impossible to introduce the wire into the eye until the cloud had cleared away. Then you will require three or four assistants. One is always necessary to hold the speculum *in situ*, to keep aside one of the labia pudendi, when required, with the finger or with a bent copper spatula, and be ready to hold aside some of the ends of the wires. Another will, if requisite, keep aside the other labium, and catch the ends of wires on his side; a third takes charge of instruments and sponges; and the fourth attends to the exhibition of chloroform, provided the patient is placed under its influence. The mere amount of pain endured by the patient is perhaps less than in most surgical operations, as the walls of the vesico-vaginal septum are far less sensitive than you would *à priori* imagine.

In what position will you place your patient? Formerly we were generally advised to have her placed on her back, as in the position for lithotomy. Wützer turned his patients upon the belly. Dr. Sims has effected an important improvement in teaching us to place the patient either on her elbows and knees, or simply on her left side, and to introduce a duck-bill speculum, resembling the one I now show you, with which the rectum is pulled upwards, and a flood of light thrown on the exposed fistula. The instrument I hold in my hand is one slightly modified by Dr. Bozeman, from the original pattern of Dr. Sims; and a very good and serviceable speculum it is for this operation. But it always seems to me that it might be improved by being made self-adjusting and self-supporting by means of a spring or screw, as we might then dispense with the services of an assistant, for whom it is a very irksome task to hold this heavy implement so long and so steadily in the required position.

FIG. 1.

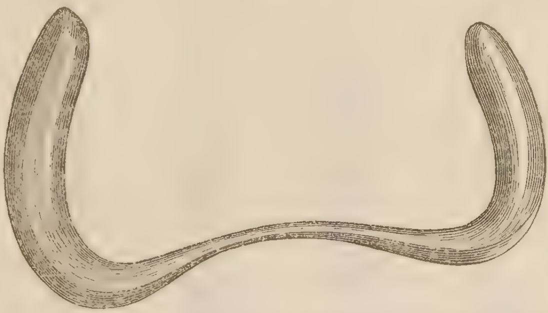


Fig. 1.—The speculum used in operating on vesico-vaginal fistulæ, with blades at either end of different sizes (quarter-size.)

Having thus arranged for the position of the patient, and the exposure of the fistula, you have now to consider what instruments you are likely to require. Taking the after-treatment into consideration as part of the operation (as, indeed, it is essential to its successful issue), you will find the proceedings divisible into five stages, in each of which a particular instrument or set of instruments comes into requisition.

1. The edges have to be pared.
2. Stitches have to be introduced.

3. The raw surfaces have to be brought into apposition.

4. The threads have to be fixed or tied, and the lips of the wound kept firmly together.

Fig. 2.

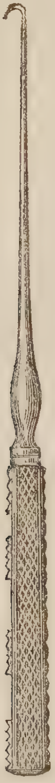


Fig. 3.

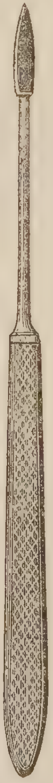


Fig. 4.

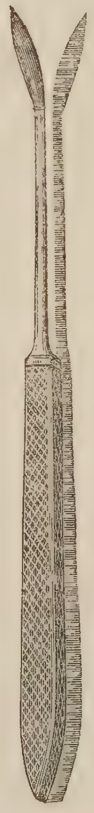


Fig. 5.

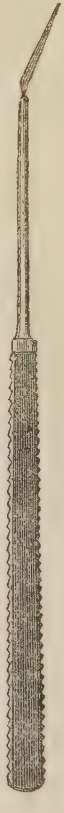


Fig. 2.—Tenaculum or sharp hook used for catching up the edge of the mucous membrane of the vagina around the fistula (half-size.)

Fig. 3.—Straight knife used for paring the edges of the fistula (half-size.)

Fig. 4.—Bent knife used for paring the edges of the fistula (half-size.)

Fig. 5.—Lateral view of the same (bent) knife to show the angle at which it, the blade is bent (half-size.)

5. A proper catheter must be chosen and adjusted, and an appropriate and careful after-treatment has to be pursued.

1. *Paring the Edge of the Fistula.*—For denuding the margins of the fistula, you require to catch up the middle point of the edge of the lower lip of the fistula, with a long-shafted tenaculum (fig. 2.), or with artery forceps, or with a small volcellum, and then the cutting is effected either with knives or scissors, or both. Sims and Bozeman use both—the scissors being employed by the latter to pare the upper border of the fistula, or to remove any small portions of mucous membrane that may chance to have been left. I find that I can succeed best with knives alone for this and for all the other purposes in which cutting is required in the operation. You may either employ the two knives of Mr. Baker Brown, the blades of which are set at an angle to the shaft, with the cutting edge of the one turned to the right, and the other to the left side (fig. 4 and 5); or you may use a straight spear-shaped knife (fig. 3), which will serve alone all your objects. In performing this part of the operation, you must be careful to have the edges bevelled off to a considerable distance from the vesical margin, so as to leave as large a surface for adhesion as possible; and to effect this with greater certainty, you will do well to enter the point of your knife into the vaginal mucous membrane at some distance from the fistula; then transfix with your knife the edge of the fistula to the extent you intend to remove it, and bring it out at the vesical border, carry it right and left fairly round the opening, so as, if possible, to bring out a complete circle of tissue. Do this part of the operation cautiously and carefully, and I would beg to add slowly, in order that you may do it thoroughly and well. In this way you can make sure of leaving a raw surface all around the opening, and this is absolutely essential to the success of the whole operation, seeing that the least bit of mucous membrane left would prevent the much desired union by the first intention. I have here a very ingenious knife, invented by Dr. Heywood Thompson, of Aigburth, furnished with a blunt protecting blade in the manner of the razors used by insane persons, and intended to prevent the knife from cutting too deeply. Naegele seems to have thought of a similar knife for the same purpose.

In certain cases Jobert, after paring the edges, dissects the cervix uteri from the bladder, close up to the peritoneum, with the object of allowing the edges of the fistula afterwards to keep better in apposition; but this proceeding seems both very unnecessary and very dangerous, and serves, perhaps, in some degree to account for the mortality of the operation which has happened from his mode of operating.

You will require a pair of long artery-forceps to seize and twist any small vessel that may bleed very profusely; or you may have ice provided to stop any hemorrhage that occurs; but usually time and exposure to the air, or the temporary introduction and pressure of a sponge in the vagina suffices. And now you may allow your patient to rest for a little to see that all the necessary apparatus is prepared for.

2. *The Introduction of the Stitches.*—Till lately this has been found to be the most difficult part of the operation, and that which demanded the greatest expenditure of time, when metallic sutures were used. For the fact is, that metallic threads cannot be inserted easily into the lips of any wounds with common surgical needles. If the angle of the metallic thread passing through the eye of the needle become bent or twisted, or even displaced, the thread will not readily follow the needle. To overcome this difficulty, Drs. Sims and Bozeman have been in the habit of first passing needles armed with silk threads, to the ends of which the metallic threads were subsequently attached and so pulled through. In this way they passed always a double set of threads, first a set of silk threads, and then a set of metal threads. For passing the needle, Dr. Bozeman, like Wutzer, Jobert, and others, has invented an ingenious porte-aiguille, while Sims uses a simple notched pair of forceps, which answers the purpose admirably well. In my first cases I followed out the same plan for introducing the stitches, viz., silk first, and afterwards iron threads; but having found it exceedingly cumbersome and tedious, I had recourse to a long needle in a fixed handle bent towards the point at an angle and distance corresponding to the bend and length of the blade of the knives I have shown you. This I first passed through the two edges of the opening; and then having introduced the end of an iron thread into the eye, I withdrew the needle, and in this way brought the thread backwards through the fistulous margins. The introduction of the stitches was thus so far simplified, and the time spent in the previous passing of silk threads was saved; but still there remained the difficulty of passing the iron thread into the eye of a needle situated in a deep and rather dark cavity. This final difficulty was got over in the yesterday's operation, by the use of the hollow needle which I here show you (fig. 6.) The immediate idea

Fig. 6.

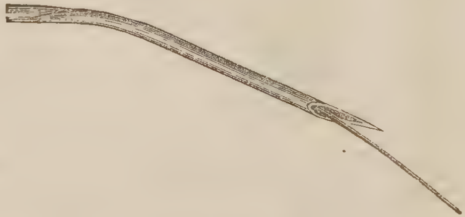


Fig. 6.—The extremity of needle used for passing wire threads through the lips of vesico-vaginal fistulæ. A wire is represented as passing through the tube.

for the construction of this instrument was derived from the description which my friend, Mr. Startin, of London, wrote me a few days ago of a curved needle which he is getting made. The needle which I have had made for vesico-vaginal fistula, is formed of a simple tube fitted into a metallic groove, to which the handle is fixed; one orifice is close to the point, the other is near the handle. The wire is pushed a little way into the latter of these orifices, and afterwards when the needle has been passed through the margins of the wounds, it is pushed right through, and seized with a pair of long dressing forceps. The needle being then withdrawn, the iron thread is left in its place, and may be pulled through as far as is required. In pulling it through you may make use of a fork or director (fig. 7), invented by Dr. Bozeman, to prevent the wire from cutting the mucous membrane. The only other instrument required in this stage of the operation is a blunt hook (fig. 8), which is used to fix and support the parts through which the eye of the needle is to pass; or rather the points from which it has to emerge. In this respect you will find it of great use; and the hooked extremity holds forward, and steadies the end of the needle after it has protruded, until you have secured and pulled forward the wire. If the thread is thus drawn through sufficiently before the needle is retracted, you have no need of Dr. Bozeman's "fork." Let me make one observation more, and that a most important observation, regarding the breadth and depth of the stitches which you introduce. I have advised you to pare the edges of the fistula fully and freely; I now beg to advise you further to bring together its pared edges with stitches that will hold strongly and steadily. Enter your needle below, and make it emerge above, nearly half an inch on either side of the fistulous opening. Pass your needle down near to the mucous membrane of the bladder, or down near to the vesical side of the wound, without however allowing it to perforate through the vesical mucous membrane itself. If it does happen to pass either thus too deep, or not deep enough, withdraw it and reintroduce it properly. It is a thousand times better to do this and other steps of the operation well, than to do them quickly.

Fig. 7.

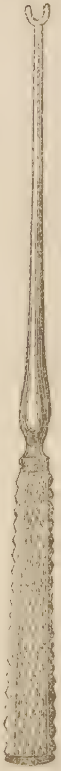


Fig. 8.

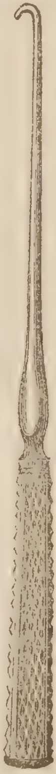


Fig. 7.—Fork or pulley used in drawing through the wires to prevent them from cutting the vaginal mucous membrane above the wound (half-size.)

Fig. 8.—Blunt hook for directing the point of the needle (half-size.)

3. *Coaptation of the edges of the Fistula or Wound.*—Dr. Bozeman recommends the edges of the wound to be brought closely together by passing the ends of each pair of threads through the perforation of his "suture-adjustor" (see 'Retrospect,' vol. xxxv., p. 313,) and sliding the adjustor along them down to the wound, when by pulling tightly on the extremities of the sutures the raw surfaces may be brought into apposition. The stiffness of the wire suture prevents the re-opening which would ensue on the removal of the adjustor from the elasticity of the tissues, if sutures of silk or hemp were employed. But perhaps the best form of "adjustor" consists of your own fingers, applied to the wires passed through the lower lip of the wound. For if you merely pull tight each separate pair of threads, and then the whole together, and press up below the lower layer of them the inferior lip of the fistula so as to press it against the upper, you will usually get the lips into more perfect apposition than by other means. In this and the next part of the operation, as the ends of the different wires are liable to become entangled with each other, you will require to be provided with a sort of rake or small steel rod, bent near point at a right angle. with which you will be enabled to separate the extremities of the several stitches. To facilitate the apposition and adaptation of the lips of the wound, Dieffenbach proposed to make incisions through the mucous membrane at short distances on either side; but these, I believe, will rarely, if ever, be found necessary.

4. *The Securing of the Threads and the Consolidation of the Parts.*—After the margins of the fistula have been pared, the stitches properly introduced, and the raw surfaces brought fairly into apposition, the next point is to tie and fix the threads in such a manner as to favour a speedy union, and provide against the re-formation of the fistula. It is in the manner in which this object is sought to be attained that we find at present the chief differences in the modes of operating pursued by the various surgeons and accoucheurs who have lately been giving their attention to this subject. Dr. Sims now contents himself with introducing a series of simple silver sutures, inserted closely together, and fixed by being twisted at the extremity. He adjusts the edges by pulling the ends of the wires with a pair of forceps steadily through a sort of adjustor held in the left hand, and afterwards used as a fulcrum of support whilst the wire is twisted by making a rotatory motion with the forceps. But it is a grave objection to this plan of procedure, especially in large fistulæ, that it makes no provision against the movements which are produced in the surrounding parts and lips of the fistula by the spasmodic workings of the muscular wall of the bladder, and of which we have an evidence in the frequent twistings and occasional expulsion of the catheter. The simple twisted wire stitches offer no check to this muscular action, and afford little or no support to the yielding margins of the wound either transversely or longitudinally; and the consequence is that the urine is liable to

be allowed to pass into the wound at some temporarily gaping point, and thus prevents adhesion.

As it is essential to the success of the operation that this spasmodic action of the bladder be restrained, or its effect at the seat of the wound counteracted, one or two important additions have been made to the simple suture. Dr. Sims used at one time what he called a "clamp-suture," the essential part of which consisted of two longitudinal metallic bars to be placed on each side of the wound, and with perforations in each corresponding to the number of stitches introduced. Through these the ends of the threads were fixed by means of split shot, compressed tightly upon them. The ulceration produced by the pressure of the clamps has induced him, however, to lay them aside, and to use solely, as I have said, the simple metallic sutures, as was done several years before, by his countryman Dr. Mettauer.

An important improvement was effected by Dr. Bozeman in the introduction of what he has called the "button-suture." (See 'Retrospect,' vol. xxxv., p. 313.) The "button" or shield consists of an oval piece of flexible lead, rendered concave on the surface which is to lie next the wound, and perforated along the ridge with a row of holes corresponding to the number of stitches used. The ends of the threads having been brought through these holes, the button is pushed down along them and adapted to the part by means of a special instrument—the "button-adjustor." A small perforated "crotchet" or pellet of lead is then passed over the ends of each suture, and afterwards pushed down close to the button, and tightly compressed by means of a pair of strong forceps—the so-called "crotchet adjustor." By this excellent and original contrivance the parts are settled and consolidated in one direction, at least; for all motion is prevented longitudinally, or lengthways in the direction of the wound; but it may still be produced crosswise, or transversely to the course of the wound, as you may satisfy yourselves by handling this piece of soft leather on which Bozeman's suture-apparatus has been fixed. I operated on one patient according to this plan, but the operation did not succeed, and I should not be inclined to repeat it. I used five stitches in this case, and the failure was due, I believe, to the circumstance that in attempting to adjust and compress the third or middle "crotchet," I accidentally crushed it obliquely, so that it was not accurately fitted to the corresponding perforation in the "button." I observed this at the time; but as I could not remedy it without removing three of the stitches and introducing others in their place, I thought it would be better to finish the operation and trust to the other four sutures keeping the edges sufficiently in apposition. On the second day, however, urine began to escape through the wound, and when the apparatus was removed on the tenth day, a small opening was left at the site of the central thread. This unfortunate result was, perhaps, owing to my own awkwardness; but where the consequences of a slight mistake are so important, it would be well to simplify as much as possible the plan of the operation, and so obviate more effectually all risk of failure. On the next occasion where I had an opportunity of operating for vesico-vaginal fistula, I was under rather unfavourable circumstances—in the country, and with imperfect instruments—so that I had not the means of applying the button according to Bozeman's method. I therefore made two parallel rows of holes along the leaden plate, and bringing the respective ends of each suture through opposite perforations, I simply tied them across the intervening ridge or bar. No doubt tying or twisting the threads in this way is simpler and easier, and less complex, than fixing them with a leaden shot. In this case the patient had had the fistula for twenty-nine years ; but now she can retain and make her water as comfortably and as freely as she ever did in her younger days. In removing the button on the tenth day after the operation, however, it struck me that it had very nearly proved unsuccessful from the amount of transverse motion that had been going on, and that had prevented the edges of the button from constantly resting on the surface of the vagina.

To consolidate the lips of the fistula and surrounding parts, therefore, still more, and to keep them perfectly at rest in all directions, I have used an iron-wire splint, (such as the one already shown you) in the last three cases in which I have operated for vesico-vaginal fistula. It is made by twisting with the fingers 10 to 15 strands of the iron thread into a cord, the ends of which are then doubled over each other and plaited round into the form of a circle. This is very light and flexible, and may be compressed into an ovoid or other shape, according to the necessities of the case. A sharp-pointed instrument or borer is used for passing among the wires to make a corresponding number of openings along each side to admit the ends of the several sutures. Those coming from the lower margin of the wound may be first passed, in their order, through the perforations on one side of the splint, and then those from the upper margin through the respective opposing holes on the other side. With the fingers or a pair of dressing forceps the splint may now be passed down to the wound and there carefully and accurately adjusted, and adapted. An instrument, of which the original idea was derived from my late assistant, Dr. Coghill (see fig. 9), and which consists essentially of two extremely short and very fine tubes fixed on the end of a steel rod, is then used for finally tightening and fixing the sutures. One end of a wire having been brought through one of the small tubes of this twister, and the other end through the other, the instrument is pushed down close to the lower bar of the splint; and then both ends of the suture having been drawn quite tight, so as to make the splint compress and consolidate the parts, a turn of the twister suffices to fix them there. To make sure you may give a turn or two more, and then clip through

FIG. 9.

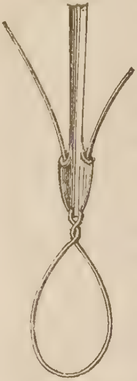


Fig. 9.—The end of the instrument for adjusting, &c., represented of full size, and as in the act of twisting the wire passed through its two terminal eyes.

the threads close to the point of the twister with a pair of stout sharp scissors. If the fistula is low down, you may, as I have once or twice done, tie the threads with the fingers, by a common double surgical knot. The open wire splint allows you to see all that is going on while adjusting the wires and fixing them, and afterwards it keeps the parts around the wound firm and motionless in every direction. In fact, when this splint is used, and properly fixed, all the lips of the fistula or wound included within the circle of the splint are held, as it were, in a consolidated state, and the included portion of vesico-vaginal septum can neither be moved longitudinally nor transversely. It solidifies, if I may so speak, for the time being, that portion of the mobile vesico-vaginal septum, and thus promotes greatly the chances of union. A portion of fine wire-cloth or gauze, of the same shape, and strengthened by having its margin turned in and doubled, will fulfil the same important indication, and can be made also readily into a splint of Dr. Bozeman's button form, but much lighter than lead.

5. *The After-Treatment.*—When the operation has been thus far completed, the case still demands an amount of careful attention and treatment, which is as important as the performance of the operation itself.

Immedately after the operation, and before the patient has been removed from the table, the water which may have been accumulating in the bladder is to be drawn off, and means must be taken to prevent its re-accumulation in any degree during the whole period that the apparatus is allowed to remain. The collection of the smallest quantity of water would have a distending action on the bladder, and would tend to separate the lips of the wound, between and into which the urine would immediately pass, and lead to disastrous consequences. To avert these, the short sigmoid catheter—made of some flexible metal, with a quadruple row of holes at the inner, and a runlet or gutter at the outer extremity, of a thickness suited to the peculiar case, and of just sufficient length to allow the gutter to project beyond the labia—is to be at once introduced into the bladder, and left there to drain away the constantly secreted urine. It must, particularly at first, be looked at every ten or fifteen minutes in order to see the water is dropping freely from it; and whenever the flow is seen to be checked, and is not restored by passing a probe along the tube, it must be taken out and cleaned. It ought, moreover, to be taken out and thoroughly cleaned twice a-day. The vagina has to be very gently washed out with some tepid water two or three times daily.

On the eighth, ninth, or tenth day, the splint may be removed. This is easily effected by clipping through with a pair of sharp-pointed scissors the stitches just below the twist and close upon the lower side of the splint, which is thus loosened, and may be now removed by being cautiously lifted upwards, taking great care in doing so not to stretch and tear open again the lips of the closed fistula. When simple stitches are used without any button or splint, in the manner now recommended by Dr. Sims, great care is needed to cut through the wire in the loop, for each suture is usually sunk deep into the tissues, and if the projecting twisted portion be removed, the part that remains will get more imbedded, and its removal will be rendered more difficult.

The patient must still wear the catheter for a day or two, and afterwards be habituated gradually to retain the water first for an hour, then for two hours, and then for any longer period ; and you will be astonished to find how soon the bladder seems to regain its normal size and capacity.

A most important feature in the after-treatment is the constant administration of such doses of opium or morphia as shall suffice to keep the patient fully under the influence of the drug. It fulfils the three imperative indications of subduing the movements of the bladder, of locking up the bowels, and of enabling the patient to maintain for a long period the supine position, which would otherwise soon become intolerable. From two to eight grains or more of opium may be given in the course of the twenty-four hours ; and the success which attends the use of the agent in this case leads one to wonder that it is not adopted by surgeons in the after treatment of all capital operations. It does not interfere in any degree with the healing process, but but dispels the ennui which the sufferer, deprived of all power of action and all source of enjoyment, must always feel ; and would make him forget to brood over his aches and miseries ; and fill his mind instead with cheerful thoughts and bright anticipations.

There are, I believe, almost no cases of vesico-vaginal fistula which you will not succeed in curing in one, two, or more operations, by adopting such a precedure as that which I have just explained to you, and that procedure will, no doubt, betimes come to be simplified and improved. This is truly an astonishing degree of success to have attained in the treatment of an ailment, which till lately was looked upon so hopelessly ; and if you inquire into the cause of the advance so rapidly made, I believe you will find it, as I have already said, to be owing mainly to the use of the metallic sutures. Dr. Sims, indeed, to whom, as you know, is due the merit of resuscitating this improvement at the present time, has declared the application of silver sutures to the cure of vesico-vaginal fistula and other wounds to be the greatest triumph of Surgery in the present century, and has pronounced all such discoveries as the use of anæsthetics to be but frivolous in comparison ! Dr. Sims further modified and improved the operation as far as regards the position of the patient, and the use of the catheter afterwards ; and he and others have claimed for America and

American obstetricians and surgeons, nearly all the honour of the success which attends the performance of the operation. But in the 'Lancet' of November 29, 1834, you will find an account of an operation performed and recorded by Mr. Gossett, formerly Surgeon to Newgate, London, and who, I believe, is now dead, resembling in almost every detail the operation as now carried out by Dr. Sims. The fistula resulted from an operation undertaken for the removal of a vesical calculus; and the case has been always overlooked, probably from the circumstance that it is entered in the index as a case of "calculus in the bladder." I take the liberty of reading to you, from page 346 of vol. I. of the 'Lancet' for 1834-35, Mr. Gossett's description of the proceeding which he adopted to cure his patient of vesico-vaginal fistula by the "gilt wire suture." "Having placed her on a firm table of convenient height, covered with a folded blanket, and resting on her elbows and knees, the external parts being separated as much as possible by a couple of assistants, so as to bring the fistula, which was immediately above the neck of the bladder, into view, I seized the upper part of the thickened edge of the bladder, which surrounded the opening, with a hook, and proceeded with a spear-shaped knife to remove an elliptical portion, which included the whole of the callous lip surrounding the fistula, the long axis of the ellipsis being transversely. This was readily effected; but, in consequence of the very contracted state of the parts, the next steps of the operation were with difficulty executed; and I should not have succeeded in passing the sutures, had I not used needles very much curved, and a needle-holder which I could disengage at pleasure, the needles being withdrawn with a pair of dissecting forceps after the holder was removed. In this way three sutures were passed; and afterwards, by twisting the wire, the incised edges were brought into contact, and retained in complete apposition until they had firmly united. One of the sutures was removed at the end of nine days, the second at the end of twelve days, and the third was allowed to remain until three weeks had elapsed, before it was withdrawn. After the operation she was put to bed, and desired to lie on her face, an elastic gum catheter, having a bladder secured to its extremity for the reception of the urine, being introduced and retained by means of tapes. She had not the slightest discharge of urine through the vagina after the operation, which has completely succeeded in restoring the healthy function of the parts." Here you have the position, the wire sutures, the mode of introducing the sutures, the mode of fixing them, and the after-treatment,—in short, the whole operation in all its details, successfully carried out in England more than twenty years ago in the very same way in which it has lately been proposed to carry it out in America. And it is quite clear, from what follows, that Gossett was perfectly well aware of the advantages which sutures of wire possesed over thread. "The advantages of the gilt-wire suture," says he, "are these: It excites but little irritation, and does not appear to induce ulceration with the same rapidity as silk, or any other material with which I am acquainted; indeed, it has scarcely any effect of the kind, except when the parts brought together are put much upon the stretch; you can, therefore, keep the edges of a wound in close contact for an indefinite length of time, by which the chance of union is greatly increased. I have used it now in very many operations, as after extirpation of the breast, tumours of various kinds, and for bringing the lips together after the removal of a cancerous growth, in all of which cases it answered extremely well. In the larger operations above mentioned, I do not, however, particularly recommend it, as there is more difficulty in applying it than the common suture. It is in minute and delicate operations, such as hare-lip, staphyloraphia, and for the closure of fistulous openings, where success mainly depends upon a speedy union of the parts, that the advantages of the gilt-wire suture are most manifest." This is certainly a most extraordinary forestalling of all that is now being done and said in the matter of metallic sutures.

To give you an idea of the pride, the just pride, with which our American brethren talk of their achievements in this department of Obstetric Surgery, let me read to you, in conclusion, what Dr. Francis, the learned and respected father of medicine in New York, has publicly said with regard to vesico-vaginal fistula, and the application of silver sutures for its cure by Dr. Sims. "Prior to the discovery, surgery could do nothing for this formidable class of affections. In Germany, Dieffenbach, Jaeger, Wutzer, and others, had exhausted all their resources in vain. Prolific Germany seems, in this instance, to have been barren. In France, Desault, Dupuytren, Lallemand, and more recently, Jobert, Vidal, and their contemporaries, had been equally unsuccessful, although Jobert claims a success that has never been demonstrated; and I fear that this eminent man, like the late Lisfranc, had scarcely that devotion to practical results which the written annals of medical science demand from all who give publicity to their cogitations and the issues of their practice. In England, their greatest men, their Coopers, their Abernethys, their Lawrences, their Guthries, could do nothing. Nor have I learned that there has emanated from that practical school of Medical and Surgical learning, which sheds so much glory over Ireland, a single practical idea that can be truly said to have favoured this improvement;" and then he goes on to speak of the shortcomings of Scotland, and in terms too flattering for me to read here, he speaks of myself, as if in this matter I represented Scotland; averring that here, too, nothing had been done to promote the cure of vesico-vaginal fistula. But, perhaps, Dr. Francis may be induced to recall this observation when he comes to know the advantages which the iron thread sutures, the hollow needle, and the splint of wire present in facilitating the performance of the operation, and in ensuring for it a successful result.

Treatment of Fistula in Vulva—There is one very simple means which is usually very effectual in curing fistula here as well as fistulæ and sinuses in other parts, and that is, the injection of strong tincture of iodine. Tincture of iodine injected into the canal of an anal fistula will sometimes cause contraction and consolidation in its track and effect a perfect cure. I have seen some severe cases of fistula in ano cured by this simple means. One case in particular occurs to my mind at this moment, where the effect of the injection was most striking. The patient came to me some three years ago or more from Ireland, with a fistula in ano of very long standing. Before setting out for Edinburgh this patient had been foolishly told, that an operation would be undertaken which was almost certain to prove fatal, so that I was at once and most earnestly asked if there was no other way of curing this fistula but by cutting it. I directed Dr. Skinner, who was my assistant at the time, to inject some tincture of iodine into it; but the injection was not attended on that occasion with any very marked result, because in all probability the fluid had not passed along the whole fistulous track. The next time, the injection was performed more effectually, as was proved by the escape of some of the fluid from the internal or rectal orifice of the fistula: and this injection was speedily followed by a most complete and perfect cure. If in any case you cannot succeed in making a fistula in the vulva close up by sending a stream of tincture of iodine through it, you may try to effect a cure, as I have once or twice succeeded in doing, by leaving a wire for a time in its track, until such a degree of adhesive inflammation is set up as shall lead to its complete obliteration. Should this means also unhappily fail, then it only remains for you to cut through with a knife all the tissues between the two extremities of the fistula, and induce the wound thus made to heal up from the bottom by granulation. But, remember, there is always much danger of profuse venous hemorrhage in this operation, and you must be duly prepared for it.—*Med. Times and Gazette, Jan* 1, 8, *and April* 16, 1859, *pp.* 1, 25, 383.

160.—ON DYSMENORRHŒA.

By Dr. J. Y. Simpson, F.R.S.E., Professor of Medicine and Midwifery in the University of Edinburgh.

[Dysmenorrhœa may be divided into two classes, according to the seat of the pain, which may be—1, in the ovary, 2, in the uterus. *Uterine Dysmenorrhœa* may depend on different morbid conditions of the womb. The following are the several varieties in which it may present itself.]

1. *Neuralgic Dysmenorrhœa.*—All pathologists admit a neuralgic division. That is, all admit that dysmenorrhœa may occur in patients who are subject to neuralgic affections, and in whom pains disappear

from the other organs and parts of the body at the time of menstruation, only to become concentrated, as it were, in the region of the womb. Such patients complain habitually of aches and pains in the face, the head, the mammæ, the intercostal spaces, or elsewhere, and these pains all become aggravated for a day or two before the appearance of the catamenia. Then acute and constant pain begins to be developed in the uterus, and as the menstrual flow sets in, the pains in other parts of the body become quite relieved. In such cases, the uterine neuralgia persists during the whole menstrual period—remitting, perhaps for a time, but never altogether intermitting.

2. *Congestive Dysmenorrhœa.*—Another class which most authors acknowledge as pretty frequent, is that of the congestive cases of dysmenorrhœa, where there is usually nothing to be found further than an exaggeration of the ordinary phenomena of menstruation. At every menstrual period there occurs a certain amount of congestion in the womb from the determination of blood to it, which is eventually relieved by an escape of the blood from the mucous lining of the organ. This congestion—which goes on not only in the uterus, but in the ovaries as well—may, and sometimes does, rise beyond the normal standard, and then uneasy sensations may be produced, and all the symptoms of perfect dysmenorrhœa.

3. *Inflammatory Dysmenorrhœa.*—Inflammatory forms of dysmenorrhœa are usually due to the occurrence of inflammation in the cervix, which is the portion of the uterus most frequently affected with that disease. Ulcers may be present around the os and be irritated by the fluid; or they may have existed at some former period, and in cicatrising they may have led to contractions of the orifice; or the organ may be indurated and thickened, and its lumen narrowed in consequence of chronic inflammation; or it may be at the time in a state of acute inflammation. In any case, the passage of the menstrual discharge through the morbidly affected part, will be a source of actual and acute suffering.

4. *Gouty or Rheumatic Dysmenorrhœa.*—There is a fourth class, which we can only talk of as gouty or rheumatic, and that for two reasons, viz.:—1st. Because it is a class where the patient has suffered before, or it may be, at the time of the attack from various other gouty or rheumatic diseases, or has shown symptoms such as are caused by excess of uric acids or urates in the blood. In the rheumatic cases, the patient has been subject to pains and swelling in the knee, the shoulder, and other large joints, perhaps has got some cardiac bruit; in the gouty cases, the smaller joints have been previously affected, and the patient suffers from excessive windy secretions in the bowels, and all the other symptoms usually met with in gouty individuals: it is in such cases that wind is sometimes apt to be developed, and to accumulate in the cavity of the uterus, as described by Dr. Rigby. The second reason for our classifying such cases as gouty or rheumatic is that they yield, as has been shown by Dewees,

Gooch, Hamilton, and others, to colchicum, guiacum, and the other remedies which are ordinarily more especially efficacious in the treatment of gouty and rheumatic diseases generally.

5. Dysmenorrhœa may be accompanied by organic diseases, or by displacements of the uterus; or, rather, it may occur as a complication of such diseases or dislocations. In cases of polypus of the uterus, for instance, or of fibroid tumours of its walls, or of any other organic lesion, menstruation is often attended with great pain and discomfort in every form and degree of retroversion or anteversion, or other displacement of the womb, dysmenorrhœa is one of the most distressing and constant complications.

6. *Membranous Dysmenorrhœa.*—There is a membranous form of dysmenorrhœa, in which, as was long ago noticed by Morgagni, a peculiar membrane is shed from the uterus, and discharged at every menstrual period.

I show you here two such pieces of membrane which were brought to me by two of my patients some time ago, and are now pretty much broken down. But from the drawings which I now point out, you will obtain a clearer view of the form and appearances of the bodies in question. Dr. Granville, in his work on abortion and the diseases of menstruation, has figured the membranes from a long series of cases occurring in his own practice. In this form of dysmenorrhœa the pain is present from the commencement, and lasts for two or three days, or till such time as the obstructing membrane gets discharged; and then the patient is relieved till the next period, or in some cases till the second following menstruation. For it is to be observed, that though this membranous discharge may occur at every catamenial period in some cases, yet in others it takes place only every second, third, or fourth month. This was formerly regarded as an inflammatory form of the affection; and the explanation usually had recourse to was that an exudative type of inflammation occurred here such as that occasionally seen in the intestinal canal, and more frequently in the respiratory tubes in cases of croup; and that a fibrinous or plastic effusion was poured out on the surface of the mucous membrane, which, in becoming organised, assumed the shape and size of the cavity in which it was formed. Rigby, Dewees, and others, supposed that such membranes were peculiarly liable to be produced in cases of gouty or rheumatic dysmenorrhœa, and they accordingly included the membranous in that other class of disordered menstruation. For some years past we have had our notions in regard to this matter entirely changed. Ever since I began to lecture on this subject, and to make some special observations regarding it, I came to the conclusion, and have always taught, that we had here to do, not with an inflammatory exudation, but with a desquamation or exfoliation of the mucous membrane of the uterus; and the proof that such is the case is irresistible. For if you examine it, particularly when it is placed in water and unfolded, you will find it to resemble, in every respect, the early decidua. Like the decidua, it is a shut sac, triangular in form, rough and irregular on the outer surface, and on the interior smooth and of a cribriform appearance. It possesses the complex structure of the mucous membrane of the uterus, containing crypts or follicles with nucleated cells and vessels intervening; and in all respects corresponds to the mucous membrane, as it presents itself to us more especially in that hypertrophied condition which is seen in the earlier periods of pregnancy. If the decidua be simply the altered mucous membrane of the uterus, as it is now believed by most anatomists and physiologists to be, then there can be no doubt that the shreds cast off in this form of dysmenorrhœa are also portions of the altered mucous membrane, seeing that they present all the same anatomical characters as the decidual membrane does; for when working at the subject some fifteen or sixteen years ago, I gave some preparations to Mr. Goodsir to examine microscopically, and he declared, and enabled me to declare, that the two kinds of membrane were identical in structures, and were both merely due to changes in the mucous membrane of the uterus. The dysmenorrhœal membrane is in some cases very thin, consisting merely of a layer of the epithelial covering of the mucous membrane of the uterus; but more frequently it is, as I have told you, of greater thickness, and represents the whole of the swollen and hypertrophied membranes.

Some authors have doubted the possibility of this monthly exfoliation from the interior of the uterus, and have questioned as to how it could occur. You will find some admitting a desquamation of the epithelial covering, but scouting the idea of the whole or the greater portion of the mucous membrane becoming detached and discharged by the contractile efforts of the uterus. When I first published a memoir about it, Dr. Ashwell wrote to say that it was a very curious sort of observation to make, and one which he would defy me to prove, because it was utterly impossible to dissect off the mucous membrane of the uterus in the dead body. True, you cannot with the scalpel detach the mucous membrane from the interior of the uterus with perfect precision, but nevertheless you have proof sufficient in the identity of structure between the expelled membranes and the uterine mucosa to convince you that an exfoliation of the latter does occur in cases of membranous dysmenorrhœa, whether from fatty degeneration occurring in its deeper layers, or in consequence of some other change with which we are as yet unacquainted. The manner in which the separation of dysmenorrhœal membranes is effected is a subject that requires still to be investigated, as does also one other point in connexion with this as well as some of the other varieties of uterine dysmenorrhœa, namely, the changes that occur in the walls of the uterus, particularly as regards their enlargement, or the increased development of muscular fibres in them at these periods.

Let me merely add in regard to this form of dysmenorrhœa that more lately Handfield Jones has come to the same conclusion regarding the uterine casts, as that which I have explained to you, and that Lebert, Raciborski, and, last of all, Virchow, have furnished additional proof of the correctness of our explanation. Virchow, indeed, has gone a step further than any of the others, for he tells us that in opening the bodies of women who have died while suffering from dysmenorrhœa, he has found the mucous membrane of the uterus in a state of partial separation ; and has thus supplied a distinct anatomical proof that up till that time was wanting.

7. *Obstructive Dysmenorrhœa.*—And lastly, there is an obstructive form of dysmenorrhœa connected with a state of stricture, or contraction of the calibre of the cervix uteri. The seat of it may be at the os tincæ, along the whole cervical canal, or at the os internum, but usually it is at the external orifice. This form of dysmenorrhœa was long ago pointed out in this School of Medicine, and much insisted on by a man of much renown as a teacher of the practice of physic, Dr. Macintosh, who proposed a plan of treatment for the disease, of which I shall have more to say anon.

Then comes the question as to how pain arises in the uterus in cases of dysmenorrhœa. The pains of labour, as I have endeavoured to prove to you in the course of my obstetric lectures, are only explicable by the fact that the uterus is thrown at the time into a state of very active contraction. At the period of parturition it is a highly developed muscular organ, and in expelling the fœtus it contracts with preternatural force, and to a degree corresponding to spasmodic contractions in other muscles ; and as in them excessive action is attended with cramps or pains, so the strong action of the muscular walls of the uterus required in the parturient process is attended with a correspondingly severe degree of pain. We have an action in the uterus, though less in degree, yet of the same kind, and attended with the same symptoms in all cases where any obstruction is offered to the escape of fluids which have become accumulated in its cavity. In such cases you have occurring what has been called uterine tenesmus, or painful muscular contraction of the womb, of the same nature as those occurring in the bladder when urine accumulates to too great an extent, or in the intestinal tube under various circumstances. In relation to the simple form of dysmenorrhœa to which I first referred, I would remark, that the uterine pain in such cases seems only to be explicable by the occurrence of irritation in that organ in a neuralgic subject : and as regards the rheumatic and gouty forms of the disease, there is probably at the time of menstruation a determination to the uterus of the morbid material which excites the specific symptoms in other parts of the body ; just as a determination of it might occur to any other part or organ which happened to be in a state of exalted action. But I must again repeat what I have already told you, that we have as yet no accurate and distinct idea of the cause and source of the pain so bitterly complained of by patients suffering from the various forms of dysmenorrhœa.

Diagnosis of the Disease.—With respect to the diagnosis of dysmenorrhœa, there is not much that I have to tell you. You will generally be right in setting down a case as one of dysmenorrhœa where you have pain in the lumbar and uterine regions occurring at monthly intervals, accompanied with a bloody discharge from the womb, and relieved when this ceases to flow. But there is one mistake which you would possibly be in danger of making, and against which it is right that I should warn you—the mistake, namely, of supposing that you have to do with a simple case of dysmenorrhœa when a patient is suffering from the pains of an abortion. You will generally guard against such a mistake by making full inquiries into the history of the case, and by examining the womb so as to discover whether it be in any degree enlarged. Or the converse mistake in diagnosis may be made. It has twice happened in the history of the old Lying-in Hospital, in Park-place here, that maid-servants have been sent in to the institution by Edinburgh practitioners who imagined that the patients were in labour, while they were only suffering from the severe pains of an aggravated form of dysmenorrhœa. And it so happened that in both of these instances, actions for damages were raised against the medical men (though they were ultimately suppressed) by patients who believed their moral character to be damaged by the erroneous diagnosis of their medical attendants. I need only allude to this subject, to prevent the possibility of your falling into such a grievous error.

The Prognosis is usually perfectly favourable, but it necessarily varies according to the form of the disease.

Treatment of the Disease.—This we may consider under two divisions, according as it is intended to be *palliative* or *preventive.*

Treatment of the Paroxysm.—The first, or palliative treatment, is that which is required at the time of the attack, and you will find that in the severer cases you are driven to the administration of various stimulants, sedatives, and sudorifics, and to the application of sedatives locally. It is a common idea among dysmenorrhoic patients themselves that they can relieve the pain by drinking large quantities of infusions of sage, pennyroyal, and other vegetables with stimulating principles, and the belief is in a great degree confirmed by experience. It is only too common a custom with such patients to have recourse to stronger and less innocent stimulants; for many women, when suffering from dysmenorrhœa, make free use of various forms of alcoholic liquor, and usually with decided relief to their sufferings. But you are not called upon to prescribe such remedies in every case, and, except in extreme cases, you will be able to dispense with them altogether. The agent which you will find the most serviceable for relieving the pain of dysmenorrhœa, and that on which I chiefly rely, is morphia in one or other of its forms. You may begin by administering a strong opiate—for in these cases there seems to be a tolerance of the drug, and the patients bear large doses with impunity. You may give as much as forty drops of laudanum, or a corresponding dose of any other opiate, at first, and repeat the dose, or, perhaps a smaller one, every hour or two hours afterwards till the pain begins to abate. You will do well in many cases to combine the morphia with some strong diffusible stimulant. Thus the addition of a drachm of chloric ether is often an admirable adjuvant to the action of opium ; and I might add that you will find a teaspoonful of chloric ether in a wineglassful of water to be one of the readiest and most efficacious remedies of that class that you can employ. Many use camphor in this way ; and sometimes camphor may be administered alone in large doses instead of opium in those cases where all forms of the latter disagree with the patient. Stramonium, belladonna, conium, Indian hemp, and many other narcotics have all been used, and have all been found to be more or less efficacious for relieving the pain of dysmenorrhœa. But in most cases you will find opium the most serviceable remedy You can often aid its action by exciting the skin, and in this way warm baths, vapour baths, hot drinks, and such like measures come to be of service. Sometimes all these means fail, and you are called upon to administer some anæsthetic by the stomach or the lungs. Chloroform may be given internally in combination with cardamoms—ten or twenty drops of chloroform to the ounce of the compound tincture of cardamoms is a very common and a very useful prescription—but its use is more apt to be attended with headache than when it is inhaled in the form of a vapour. One of the first uses to which chloroform was put after the discovery of its anæsthetic properties, was to relieve the pain in a case of dysmenorrhœa. The patient was an unmarried lady, and one of those who lived in perpetual dread of the recurrence of the catamenia. She lived with her sister in a house in the New Town, and when I first went to administer the chloroform to her, I could hear her groans and cries as I entered the door, although she was lying in a room three stories up. She suffered in fact quite as much pain at those periods as most women do when in labour, and it was no wonder that she looked forward to the monthly return of her agony with horror. I kept her asleep, at that time, for about half-an-hour with the chloroform, and she had no return of the pain during the continuance of that catamenial period. This was owing to my having administered the chloroform just at the commencement of the period ; for, mark you, if you can bring the patient into the anæsthetic condition for only a short time at the very onset of the attack, you may hope to find her remaining free from pain while the discharge continues ; whereas, if you delay it till many hours have elapsed, the drug must be used for a longer time, and the relief experienced is never so permanent.

As local sedatives, opium and belladonna have been often used, but with little benefit. Lately it has been proposed to use veratrine applied to the loins to relieve the dorsal pain, and its advantages have been much pressed upon the profession; but it possesses little or no claim to confidence. There are only two local anodynes from which I have obtained much good results, and these are carbonic-acid gas and the vapour of chloroform. Dysmenorrhœa was one of the diseases which carbonic-acid gas was, first used to relieve. Majou of Geneva wrote a paper some thirteen years ago, in which he showed the efficacy of the gas in relieving the pain of disordered menstruation; and I have often seen it afford instantaneous relief: or the vapour of chloroform may be employed locally, applied in the manner I described to you when speaking of its use in relieving the pains attendant on carcinoma uteri. It may, as I then told you, be applied alone or in combination with carbonic-acid gas. When the local application of the vapour is sufficient to relieve the pain, it is always the most satisfactory mode of applying it, for then it does not have the sickening effect that sometimes attends its internal administration. Let me only add, in regard to the internal use of opium, that there is one great drawback attendant on it, and that is, the horrible sickness which it causes in many patients; and if one of you could only devise some preparation of the drug which would develope its sedative action without producing any nausea, he would confer a mighty boon upon us all—patients and practitioners as well.

I have hitherto been speaking merely of palliative measures, such as are to be adopted during the time of the attack; but when you have used them successfully, you have not yet done all that is necessary for your patient. You must also treat the disease in the intervals between each menstrual period, with a view to prevent its recurrence. Now there are various preventive measures with which you must become acquainted, and which you must learn to apply to each appropriate case; and these measures must be adopted and carried out perseveringly and from month to month until a cure is effected; for you will find that when you are not making progress you are losing ground, and your unfortunate patient may relapse into a condition as bad or worse than that in which you found her.

Before I quit the subject of palliative remedies, permit me to add, that my friend, Dr. Little, who has long practised at Singapore, told me that in severe cases of dysmenorrhœa he had frequently succeeded in relieving the patient, by applying chloroform as an anæsthetic vesicant, if I may so term it, in a manner which he had used first of all with success in curing some neuralgic symptoms from which he himself had at one time suffered. His plan is this: a small circular piece of lint, just of sufficient dimensions to be easily contained within a watch-glass, being steeped in chloroform, is placed on either groin, and covered at once with the watch-glass. This has the effect in a few minutes of producing a blister, and is usually successful in relieving the patient's sufferings.

So much for the measures to be employed for the immediate relief of the more urgent symptoms of dysmenorrhœa—an indication of much importance, and one which all of you will very frequently be called upon to fulfil to the utmost of your ability. But however important it may be to be able to combat with success the distressing symptoms of dysmenorrhœa, this is after all the least part of your duty to your patient; for however suitably and skilfully you may apply your remedies, and however successfully you may meet the several symptoms, you will never by such means be able to secure your patient against the recurrence of her monthly misery; and you will be urgently called upon to adopt some measures for procuring her a more perfect and permanent relief. This leads me, therefore to speak now of

Preventive Treatment.—The preventive treatment of dysmenorrhœa includes all the remedial measures which may be had recourse to during the intervals between the menstrual periods, with a view to the radical cure of the diseased condition which gives rise to the menstrual paroxysms, and as these measures vary with the pathological cause of the disease, we shall have to consider the treatment appropriate to each variety of it. Let me, however, premise that the same line of treatment will often succeed in curing two quite different forms of dysmenorrhœa, and, on the other hand, the same form of dysmenorrhœa may sometimes be cured in one patient by some means which will prove ineffectual in another case. Moreover, unless you can succeed in effecting a radical cure for your patient, you will find that you are generally losing ground every month, and that she is getting worse at every succeeding period; and therefore you must be prepared to employ a variety of measures, if need be, in each particular case.

1. *Treatment of Ovarian Dysmenorrhœa.*—No special organic or structural disease of the ovary has ever, as far as I am aware, been found to be a pathological cause of ovarian dysmenorrhœa. The morbid conditions of the ovary that have been hitherto observed to be connected with the production and persistence of dysmenorrhœa are neuralgia, congestion, and inflammation in their chronic forms. The preventive treatment of dysmenorrhœa, when dependent upon ovarian neuralgia, is the same in its principles and details as the preventive treatment of dysmenorrhœa when dependent upon uterine neuralgia; and that I will describe to you immediately. When dysmenorrhœa is kept up by a state of ovarian congestion or inflammation, we must try to reduce these morbid states during the catamenial intervals, by repeated leechings, applied to the cervix uteri, or hemorrhoidal vessels, by assiduous counter-irritation to the groins or sacrum, and by all the usual internal remedies and means employed against local inflammations and congestions of other isolated organs of the body.

2. *Treatment of Neuralgic Dysmenorrhœa.*—Where the disease assumes the neuralgic form, put the patient through a course or courses of the alteratives and tonics, particularly the mineral tonics,

which are specially serviceable in all other neuralgic diseases. By this means, and by the enforcement of a good diet and regimen, try to raise the standard of her health up to the normal type, or indeed, if possible, above it. By following out such a line of treatment after a painful menstruation, you will sometimes be able to protect your patient from the same degree of suffering at the succeeding term. Set every organ to rights whose function seems in the least degree languid or impaired, whether it be the skin, stomach, bowels, kidney, &c. In this neuralgic form of dysmenorrhœa, regulated muscular exercise, riding on horseback, and analogous hygenic means, in the intervals, are sometimes of the highest moment as curative measures. Rouse and stimulate the mind and well as the body, by new studies and new scenes. In these cases a visit to some alterative or saline mineral waters is, in this double way, sometimes of wonderful use. Afterwards, a course of chalybeate waters or chalybeate pharmaceutical preparations, will sometimes establish the cure. Have no fear, for I believe it is a groundless fear, that the use of iron will congest and irritate the uterus. Ferruginous remedies are often our best remedies in the latter stages even of distinct uterine congestions. Let me make one remark more before leaving the subject of neuralgic dysmenorrhœa. All forms of dysmenorrhœa, when long continued, are apt to become more or less neuralgic in their type, and sometimes remain and persist as such when their more immediate pathological states have been removed and cured. Hence it happens that many cases of dysmenorrhœa require to be treated as neuralgic at last which are not neuralgic at first.

3. *Treatment of Congestive and Inflammatory Dysmenorrhœa.*—When the morbid irritibility of the uterus producing recurrent and successive paroxysms of dysmenorrhœa, is the result of chronic congestion of the organ, or of chronic inflammation in its cervix or walls, you can only hope for a permanent cure by permanently removing, in the first instance, the congestive or inflammatory morbid states that may be present. What antiphlogistic and other means we possess for fulfilling these indications, I shall have occasion to state to you at full length, when subsequently discussing these special morbid conditions themselves.

4. *Treatment of Gouty and Rheumatic Dysmenorrhœa.*—For the gouty and rheumatic forms of the disease, you will find useful results from the administration of colchicum and guiacum, either alone or in combination with alkalies. According to my experience the best prescription you can order in such a case would contain six or ten grains of the powder of guiacum, and six or eight grains of bromide of potassium, with the addition of an equal quantity of magnesia where this seems to be required, to act on the bowels. The use of the bromide of potassium, as Trousseau first tried to show, and Sir Charles Locock afterwards found to be confirmed in practice, is that it exerts a sedative action on the sexual organs possessed by no other

drug in the Pharmacopœia; and such a powder as that I have indicated, taken three times a-day during the interval between two menstrual periods, will in many cases succeed in warding off any further attack of dysmenorrhœa.

5. *Treatment of Organic Dysmenorrhœa.*—Where the dysmenorrhœa is dependent on some organic disease of the uterus, the latter will require to be treated without any special regard to the neuralgia which occurs at the time of menstruation. You will only relieve the dysmenorrhœa by removing, when possible, the organic morbid state, as polypus, retroversion, &c.

6. *Treatment of Membranous Dysmenorrhœa.*—Before I speak of the radical treatment of the membranous form of the disease, I have to make one remark in reference to it, supplemuntary to what I was saying to you yesterday about the pathology of membranous dysmenorrhœa, and it is this, that investigations are still wanting as to the influence which is exerted by the ovaries in exciting the formation of the membranes discharged in such cases. We do not know whether there exists any special kind of disease or diseased action in the ovaries, or whether on these occasions they become the seat of any unusual degree of excitement, such as might be indicated by a degree of change in the burst Graafian follicle; so great as to cause it to assume more nearly the character of the corpus luteum occurring on impregnation. As regards the treatment of membranous dysmenorrhœa, you will find that various plans of treatment have been recommended according to the view entertained as to the nature of the disease. Thus, by some authors, the remedies appropriate for the cure of the rheumatic dysmenorrhœa have been much bepraised, and held to be of special advantage in this form of the affection; while others, who regarded it as inflammatory, and looked upon the membrane as a fibrinous exudation, held that a cure was only to be sought for by means of antiphlogistics. We have here, in fact, a most notable example of how a change in our ideas as to the pathology of a disease will lead to a corresponding change in our therapeutic procedures. For we now know that the disease is not peculiar to rheumatic subjects, nor produced by any peculiar rheumatic poison; and further, that it is not of a purely inflammatory character, but that it is due merely to an exaggeration of a normal condition, or to an exalted degree of a physiological action; and the consequent change brought about in our treatment consists in this, that while we administer bromides and iodides, and other internal remedies which are likely to exert an alterative action on the uterus, we at the same time apply local remedies with a view of changing the condition of the organ and modifying its action, so as to lead it to perform its functions in a healthier and more natural manner. I think I have sometimes seen good results in this way from the local application of mercurial preparations—putting the uterus, as it were, through a sort of independent mercurial course. It may very easily be applied by

the patient herself, in the form of a medicated pessary, introduced twice a-day into the vagina and pushed up to the womb. Used in this way, mercury does produce not only a local effect, but also, in some exceptional cases, I have seen it produce its constitutional effects, and lead to salivation. That drugs applied in this form may be absorbed into the system, is evidenced also by the narcotic effect sometimes produced by morphia given in the form of pessaries. The constitutional action of the drug is not by any means so marked as when an equal quantity is administered per anum ; but in some very susceptible patients I have seen pessaries containing half a grain of morphia cause contraction of the pupils, and all the effects of a full dose of the drug when taken into the stomach. But whether the mercury produce a general action or not, I am certain that you will often find much good resulting from its local application, all the more, if at the same time some alterative and tonic constitutional treatment be employed. On this treatment you will find some valuable practical remarks in the excellent work which Dr. Rigby has lately published on the Diseases of Females.

In more obstinate cases I have sometimes used with advantage remedies of an alterative type, applied directly to the lining membrane of the uterus. This kind of treatment seems to be more particularly indicated where, after each expulsion of a dysmenorrhœal membrane a sort of leucorrhœal discharge from the interior of the uterus sets in, and continues for a longer or shorter period. It may be likened, on a small scale, to the lochial discharge occurring after parturition, or after an abortion. In such cases some caustic or alterative stimulant, such as nitrate of silver, may be applied to the interior of the uterus by means of this instrument resembling the porte-caustique of Lallemand for applying caustics to the orifices of the spermatic ducts in males—only with this difference, that it is curved towards the point in the manner of the uterine sound in order to suit the axes of the pelvis, and is furnished at two inches from the end with a small knob to mark the normal length of the uterine cavity. The instrument consists of a long tube curved near the extremity, and provided with a stilette, which is capable of being pushed through the tube to about the extent of an inch—the length to which the tube is retracted being regulated by means of a ring which may be fixed at any point near the handle. In one side of the stilette, in the part which may be protruded, is a groove into which the finely-powdered nitrate of silver is placed. The instrument is introduced into the womb with the end of the stilette protected by the tube, and then the tube having been withdrawn to the required extent, the powder is scattered over all the interior of the uterus by turning round the handle of the stilette. By this means you may sometimes produce a salutary effect on the mucous membrane; and other substances, such as pounded iodine, &c., may be used in the same manner. Even perchloride of iron may be employed, but as it is too deliquescent to be kept applied in the form of powder, you will require to apply it in solution, by means of an instrument essentially of the same construction as that which I have described, only differing from it in having a narrow piece of sponge, about an inch in length, fixed to the end of the stilette for the absorption and application of the liquid. But, mark you, never think or dream of throwing liquids into the interior of the uterus by means of any injecting apparatus, for severe and fatal inflammations are very likely to ensue. Such a result may, perhaps, be caused by the fluid running along one or other patent Fallopian tube and escaping into the peritoneum; more probably it may be due to laceration of the mucous membrane and entrance of the fluid into one of the uterine veins; but however it may be produced, the consequences of injecting fluids into the cavity of the womb are so often dangerous and deadly that the practice has now been given up, I believe, by all accoucheurs. We can still, however, apply solids with safety in the manner I have told you; and by doing so once, or twice, or thrice, in the intervals between the menstrual periods, you will often succeed in changing the action of the uterus, and in wearing out the tendency of its mucous membrane to become exfoliated at every menstruation.

7. *Treatment of Obstructive Dysmenorrhœa.*—Lastly, it remains for me to speak of the radical treatment of the mechanical form of dysmenorrhœa where there exists some obstruction to the escape of the menstrual secretion, or of those cases where the os or cervix uteri are too narrow and contracted to allow of the free discharge of the secreted menstrual fluid. It is a pathological principle in the case of all other hollow organs with orifices or canals of outlet, that when their canals or orifices become strictured or obstructed, accumulation of the appropriate fluid takes place within their cavities, that muscular contractions are then excited in their walls for the expulsion of the accumulated contents, and if these accumulations become common or chronic, the muscular coats of the distended organ are apt to become thickened and hypertrophied. This principle, for example, we see illustrated in the case of the bladder, when, from stricture of the urethra, an obstruction is presented to the free flow of the urine, and the manifest indication for treatment in such a case is the removal of the obstruction. The same pathological principle applies to the uterus in the case of contractions of the os and cervix, and the same principle should guide us in the treatment of it. Dr. Macintosh, a medical teacher of great reputation in this school some twenty-five years ago, thought he was the first to call attention to this particular form of dysmenorrhœa, and proposed to treat it in the same manner as surgeons do strictures of the urethra. But, in passing, allow me to say that the idea that stricture of the os uteri may cause dysmenorrhœa, is far from being so novel as Dr. Macintosh believed, for it was known long before that it could not merely give rise to dysmenorrhœa, but that it could also be in some cases a source of sterility.

Not only so, but the plan of treatment then recommended by Dr. Macintosh was forestalled ages before. For, in the works included among the Hippocratic writings, the disease is most distinctly spoken of, and the appropriate treatment described. In the thirteenth section of the Γυναικείων Πρῶτον, the treatment of those cases is given where sterility is due to some unusual conditions of the os uteri; and among other things, the writer tells us that where the orifice is very much contracted, it must be opened with bougies and leaden instruments. So that this plan of treatment is at least 2500 years old. Some others, among the older Greek and Roman writers on female diseases have also alluded to this form of dysmenorrhœa or sterility, and to its treatment by dilatation of the os uteri, though none so distinctly as the Father of Medicine himself. But there are various surgical works of later date in which mention is made of this matter in the most explicit terms. Thus in the 'Marrow of Chirurgery,' published in the latter part of the seventeenth century by Mr. Cook, of Warwick, a work containing various curious notices and cases in obstetric, medical, and surgical practice, this author treats in one of his chapters of closure of the "inner orifice" of the womb, or os uteri, and recommends it to be enlarged when necessary by gentian root or prepared sponge, and afterwards by the introduction of hollow instruments of silver, ivory, or horn, and these means, he adds, are better than incision. When I first read these observations by Mr. Cook five or six years ago, it appeared to me that this English provincial practitioner had quite anticipated every modern principle in the treatment of these cases. Mr. Cook published another work several years before the 'Marrow of Chirurgery' appeared. This second book was published in 1657, and entitled "Select Observations on English Bodies; or Cases both Empiricall and Historical performed on many eminent persons in desperate cases; first written in Latin by Mr. John Hall, a physician residing at Stratford-on-Avon." This work (and the original Latin manuscript of Mr. Hall is in the possession of my friend Dr. Jackson, of Edinburgh) does not contain among its two hundred cases any notice of any instances of dysmenorrhœa, and is more interesting in other respects than its medical relations. For Dr. John Hall—whose cases Cook translated from Latin into English—was the son-in-law of the immortal Shakspeare, having married Shakspeare's favourite daughter, Susannah; and he inhabited and practised in Shakspeare's "great house" at Stratford after the poet's death. He died several years before his wife; and Susannah Shakspeare sold her husband's manuscript volumes to Mr. Cook. In his preface Cook tells us how cunningly Susannah drove the bargain with him for her husband's manuscript work, all the time denying it was her husband's. But I have no doubt that, though a puritan surgeon, the buyer was as sharp as the saleswoman. At least I am inclined to judge so from the fact that the remarkable passage which exists in his 'Marrow of Chirurgery,' regarding the treatment of obstructive dysmenorrhœa, is taken by Cook deliberately, almost verbatim, without his having tried the practice, and without one hint or word of honest acknowledgment, from a work published some years previously at Amsterdam, by one of the inventors of the obstetric lever.

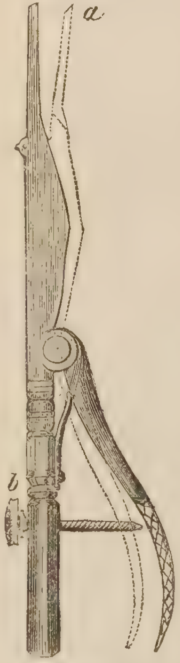
[In 1676 Henry van Roonhuyse writes that in some cases of "Clausura Uteri" he enlarged the neck and by means of the radix-gentiana, medulla sambuci, or even by a prepared and dried sponge, having been first moistened in melted white wax, and squeezed in a press to make it convenient pessaries, according to the exigency of the case, by which means the neck of the womb can be disclosed and and widened. Dr. Macintosh, in 1832, used metallic bougies of different degrees of thickness, gradually using larger and larger ones in succession. At this time he writes "I have treated twenty cases of dysmenorrhœa by dilating the os uteri, and have permanently cured eighteen of the patients."]

It has been argued in relation to this kind of practice, that if the os uteri is open enough to admit of the entrance of a probe, it should admit of the escape of the menstrual fluid as well. But it always seems to me that the degree of dysmenorrhœa and the amount of suffering depend not so much on the actual degree of contraction in any case as on the amount of the fluid, or rather, on the rapidity with which it is secreted. If the secretion be very rapid from the commencement, or contains solid coagula or lymph, the os, though pervious to a probe, may be too small to allow all the eliminated fluid to escape from the uterine cavity. Consequently, the retained secretion will accumulate within the uterine cavity, and the distension produced by this accumulation will lead on to the establishment of expulsive or dysmenorrhœal pains. For where the os is relatively small, without being greatly or morbidly strictured, the pain is not perceived until after the discharge has set in, and even then it is not steady and continuous, but more paroxysmal in character. It may not altogether intermit, but it remits. When, I beg to repeat, the amount of fluid secreted is too great to allow of its easy escape, it becomes accumulated in the cavity, and causes pain by distending and exciting the uterus, till it begins to contract with such force as to expel a quantity of the fluid, and then a temporary relief is obtained which lasts until a re-accumulation of the secretion produces afresh the painful sensations. In this way retention and obstruction may even occur with a comparatively wide os, provided the menstrual fluid be very rapidly secreted, and especially if it be mixed up with solid masses of coagula or fibrine ; and, on the other hand, in cases where the uterus gives out only and always a very small and scanty or rather a very slow secretion, no pain may be experienced, although the os may be of the smallest calibre. Mechanical dysmenorrhœa may occur, in short, in some cases where the os is nearly of the normal size, and does not of necessity occur where the os is contracted and strictured to the greatest possible degree; and it very generally happens that when irritation has once been applied to the womb, and the muscular fibres have once been called into action, the contractions go on for hours afterwards, and give rise to painful sensations.

I have repeatedly followed out Dr. Macintosh's plan of treatment by means of bougies of daily increasing size; and sometimes with perfect success. But you will find if you come to try it that it is an irksome and tedious process, taking up a great deal of your time, and often causing very great pain to the patient. So much suffering do some patients experience from this daily distension and dilatation of the os and cervix, that they are content to bear their monthly pain rather than submit to the ordeal of such a frequent torture; and therefore I have been led at various times to try different methods of attaining the object in view, viz., dilatation of the contracted orifice. I made use for a time, after the first stages of dilatation were effected by bougies, of a fine, hollow, two-bladed instrument, which could readily be passed into the canal of the cervix, and could then be dilated by having a bougie of larger size pushed in along its cavity, or between its blades. Others have used instruments with two blades, which could be separated by means of a screw, somewhat resembling the instrument contrived by Mr. Weiss for dilatation of the female urethra for the removal of urinary calculi.

Again, as you are aware, some French surgeons have found good results in cases of stricture of the urethra from leaving bougies in the passage for a lengthened period; and this plan of treatment for that disease would, doubtless, have come more into vogue, and have been much more extensively employed, had it not been attended with this one drawback, viz., that the urine required to pass along the sides of the instrument, and was a source of constant annoyance and discomfort to the patient. In the case of stricture of the os and cervix uteri, however, no such drawback could possibly occur, as in the intervals between the catamenial periods nothing but a slight mucous secretion escapes along the cervical canal, and to save my own time, and that of the patient, I had recourse to the use of permanent bougies or small sounds, which are introduced into the interior of the uterus and left there. And this treatment has been attended, in many cases, with the happiest results; for there is this peculiarity connected with the use of bougies for dilating the cervix uteri, that while the introduction of the instrument sometimes causes pain for a short period at first, and possibly excites some spasmodic action in the muscular fibres, this very soon subsides when the instrument is left in the canal, and there it may remain days and weeks, without causing any further disturbance. For a long time I employed intra-uterine bougies as the chief or only agents for the cure of mechanical dysmenorrhœa, passing in one of a larger size every three or four days. The principal disadvantage attendant on their use was the length of time required for obtaining a cure by means of them. That disadvantage may be, however, overcome by effecting the dilatation by sponge tents, which will expand the os and cervical canal in twenty or thirty hours. But I very frequently found that when the dilatation was effected, mechanically, and whether slowly by sounds, or rapidly by sponge tents, relapse of the stricture or contraction was very apt to occur after a time; just as so often happens after the treatment of bad stricture of the male urethra by merely dilating instruments. For some years past I have thought that the best and speediest mode of cure is to have recourse at once to dilatation of the os by incising it at both sides. In order to understand the mechanism of this operation, just consider, for a moment, what is the object which you wish to attain by your treatment. A married patient applies to you for the cure of obstructive dysmenorrhœa and its usual accompaniment, sterility. Now, knowing that the one condition as well as the other is comparatively rare in the case of women who have once borne children, what you want to effect is to bring a uterus that has never contained an impregnated ovum, as nearly as possible into the condition of one that has. The occurrence of pregnancy once, seems to bring the uterus into a condition favourable for its recurrence, although this may not be evident in ordinary cases where pregnancy goes on to the full term, and ends in the parturition of a living child, for then lactation comes in with its counteracting tendencies. But you can satisfy yourselves of the truth of the remark as a general principle, to which there are doubtless many exceptions, by making the necessary observation in the case of mothers who do not nurse, and some of whom in consequence bear a child almost annually; and also in the case of women who are frequently aborting, for in them you will find that so soon as the immediate local and general effects of the abortion have passed away, impregnation very often occurs again immediately; whereas in the first instance it may not have supervened for some months or more after marriage. And the only appreciable difference in the state of the uterus in such a patient at the time of marriage, and after parturition or after a miscarriage is, that at the latter period the os and cervix uteri are less contracted. A patulous condition of these parts seems to admit of the more ready entrance of the spermatic fluid, and so to favour impregnation. Now, then, how can we best bring the uterus of a female who has never borne children into a condition resembling the uterus of one who has aborted or borne living children? If you look at the os tincæ of a once gravid uterus, you will perceive it to be of an elongated oval form, the long axis of the opening being directed from side to side; while the orifice of a virgin uterus is much smaller and more nearly circular. The os of the former kind of uterus is not only wider than that of the latter, but its form is different; and while by means of bougies or sponge-tents you may render the opening of the virgin uterus for a time sufficiently patent, you cannot by such means impart to it that longitudinal form which seems to counteract its tendency again to contract on removal of the dilating force. But all this you can effect at once, rapidly and certainly, by making incisions of sufficient depth into both sides of the cervix uteri. To make such incisions, you require to introduce this instrument or metrotome as far as the os internum, where the incision begins—at first quite shallow, and then make it deeper as the instrument is withdrawn, till at the os externum the cervix is cut across in all its thickness. An incision of this nature into both sides of the cervix makes its canal wide and pyramidal in form, so as easily to admit the finger; and in healing leaves the orifice more like that of a uterus from which an impregnated ovum has been expelled. The first patient on whom I performed this operation, in 1843, was a lady of high rank, who had been married for several years, without having had a family, and who used to suffer at each menstrual period from most excruciating pains. She had heard about the dilatation, and had got up the whole subject—anatomy and all—and came to Edinburgh with the view of obtaining relief by that means. I explained to her that the process would occupy a considerable period—two months or more, when she at once said that the time was too long, and that unless she could be cured by some speedier method she would not submit to be treated at all. I then told her that I had often thought of dividing the cervix in such cases; and that though I had never yet put it in practice, I believed it would be both a speedy and a most effectual means of procuring relief. She readily comprehended what was meant, and seeing the feasibility of the proposal, at once said that I must perform the operation on her as the first patient. I made the incisions as I have told you, but with a very imperfect instrument, and the patient soon was perfectly well, and about four months afterwards I heard that she had become pregnant. I was afraid that the cicatrix might present some obstruction to parturition, and so was Sir Charles Locock, who was to attend her in her confinement in London. I was waiting very anxiously to know what effect the operation might have had on the labour, when a letter from Sir Charles relieved me from my anxieties, for he told me that the labour had not only gone on quite favourably, but had even been remarkably easy for a first confinement. Since that period I have performed the operation in a very great number of cases. Last week, for example, I had recourse to it in not fewer than five cases. In fact, it has come, with me, to be the usual mode of treatment for all cases of dysmenorrhœa depending on contraction of the os or cervix uteri.

How are the incisions to be made? The instrument which I use for the purpose is a sort of concealed bistoury such as I now show you. The patient being placed on her left side, the point of the instrument is passed up to the os internum, and when there is a stricture at that point—which, however, is rarely the case—a slight notch is to be made there on either side. This I say, you will rarely find it necessary to do; what you most commonly require, is to incise and open up the canal of the cervix and the external orifice. To do this you must introduce the instrument nearly to the internal os. and then, as you withdraw the instrument, press out the blade and cut through the cervix on one side in such a way that at first only the internal fibres are divided, and the incision, as it becomes lower, becomes also always deeper till the point emerges somewhat below, where the mucous membrane of the vagina becomes reflected on the cervix, and below this point the portio vaginalis uteri is divided in all its thickness. You then turn round the instrument, and make a similar incision on the other side. When you have thus divided either side you will feel that a conical opening has been left, the base of which includes all the thickness of the portio vaginalis uteri. The canal may contract to some degree afterwards when the wounds heal, and to prevent this I have sometimes made use of sponge-tents or intra-uterine bougies. But the introduction of these instruments in such cases causes pain and irritation of the raw lips of the wound; and you will find that by opening up the wound every two or three days for a time with the finger, you can effectually prevent all union by the first intention, and in this way provide against the chances of a recurrence of the stricture; or you may touch the corners of the wound with a piece of nitrate of silver with a like good result. Hemorrhage may sometimes follow division of the cervix, more particularly if you cut too deeply in the upper portion of it, where you run the risk by so doing of wounding some of the veins of the plexus uterinus; and it ought always to be guarded against by plugging the vagina immediately after the operation with some pieces of sponge. In some few instances the hemorrhage is pretty smart; but I have never seen it occur to any very alarming extent. Inflammation may sometimes be set up and spread to the surrounding loose cellular tissue; and though this rarely goes on to any dangerous extent, yet you may expect sometimes to meet it, and you must always be prepared to treat it. Attended with such rare and slight risks, the operation is a very safe one; and there is only this further to be observed in connexion with it, that unless all the fibres are fully divided, there is sometimes a chance of the wound healing too rapidly, and the stricture being reproduced. But altogether, I believe I am entitled to say, that

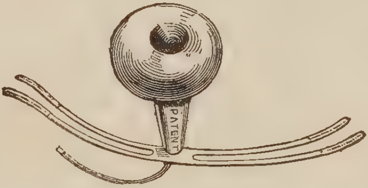


The hysterotome or metrotome. To allow of the protrusion of the blade *a*, to the desired extent, the rod *b* in the handle must be screwed out to the proper distance.

there are few operations in surgery so perfectly simple in their performance, and so entirely satisfactory in their results, as division of the cervix uteri in cases of obstructive dysmenorrhœa and sterility.—*Med. Times and Gaz., Feb.* 19, *March* 5, *and March* 12, 1859, *pp.* 181, 231, 259.

161.—MR. BOURJEAURD'S PATENT MUSHROOM PESSARY.

This new pessary is calculated to give support to the prolapsed uterus without creating any irritation of the cervix or vagina, and to allow the escape of fluids. Its construction is such that when fully inflated it resembles a mushroom, the dome of which receives the cervix in a depression. The elasticity of the dome—which is, according to the circumstances of the case, more or less filled with air—affords the cervix a yielding and yet sufficiently resisting support, whilst the stalk prevents any inefficiency of the apparatus. Both dome and stalk present a cylindrical canal, which is intended to prevent any accumulation of the normal or abnormal discharges. By means of a tube and reservoir of air, the pessary may be rendered more or less distended after its introduction into the vagina; and the introduction is rendered extemely easy by the small size of the pessary when not inflated. The whole apparatus is of exquisitely smooth india-rubber, and secured upon the patient by elastic bands, which are easily adapted to a light narrow belt running round the lower part of the abdomen. This pessary seems to answer every end desired in the construction of such instruments, and to be free from the objections which are urged against many of those which have for some time been before the profession.—*Lancet, April* 2, 1859, *p.* 348.



ADDENDUM.

162.—A TEMPERATE EXAMINATION OF HOMŒOPATHY.

No. I.

THE DOSES AND "PROVINGS" OF HOMŒOPATHY.*

By W. **Braithwaite**, Esq., Leeds.

In our former volume we endeavoured to show some of the curiosities of homœopathy, in the way of mixing up or diluting homœopathic medicines. We have since thought that the calculations, although quite true, are difficult to be understood. We have therefore endeavoured to simplify them in this volume, so that any one may easily understand them. In further studying homœopathic writings, we are forcibly struck with a few things which we find in them.

The homœopaths treat the *symptoms* of a disease, but the disease itself is frequently neglected altogether. Many very different diseases requiring different treatment have symptoms very similar: so that to treat the symptoms only is to commit a grave mistake.

There is an attempt throughout these homœopathic writings to make the public believe that, as all medicines are poisons, the homœopathic is the only safe method, while regular physicians give such strong doses that the constitutions of their patients are injured. This is a total misrepresentation, in fact it is a discreditable accusation. Regular physicians and surgeons are exceedingly careful when they prescribe strong medicines. The day has long since passed when this strong-dose system was used. Modern medicine is very different from what it was twenty years ago. The homœopath constantly attempts to make the public believe that *his* is a *new system* of medicine, whilst the other is an *old system*. This is another misrepresentation. Medicine is a progressive science, and has wonderfully improved of late. Let the reader turn to the preceding pages of this volume, and he will find above a hundred papers on various subjects, all of which contain something new by various authors. Every year we record nearly 300 improvements in the knowledge and practice of medicine. How can this be called an *old system?* The assertion only proves that the homœopath does not read modern books, but only ancient ones. We have suspected this long; but since reading the quotations from old medical books which we find in their writings, and made with the particular object of throwing discredit on the practice of medicine, we feel convinced that they pay little or no attention to the modern literature of our profession, except what they find amongst themselves. Another mistake of the homœopaths is to call regular surgeons and physicians *Allopaths*, i. e., those who treat diseases by "contraries." This is a great error, founded on their own ignorance of the nature of disease. There really is no such person in the regular ranks of the profession as an "*Allopath.*" The regular physician takes one great principle as his guide, viz., the wonderful power of the constitution to right itself when thrown wrong. Sometimes he has to *assist* this power, sometimes to *check* it, and sometimes to *let it quite alone,* and prevent other people, and even the patient himself, from interfering with the cure going on. How can this be called *Allopathy ?*

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* This little pamphlet can be had separate through any bookseller; of Simpkin, Marshall & Co., London; or at our printer's, Mr. D. I. Roebuck, 14, Trinity Street, Leeds. Price 2d. each, or 50 for 6s.

In the present article we will endeavour to simplify the homœopathic calculations, and add some of the curious *provings* of medicines used. We intended also including in this volume two other subjects, viz., the *statistics* of homœopathy and some remarks on its *principles.* If we have room in our next volume, we will resume the subject; we think that we can prove that the *statistics* of homœopathy are quite erroneous, and that the *principles* are quite unscientific, and contradicted by facts. We shall be able to show that some of their *statistics* are seriously miscalculated, and we would almost say, wilfully misrepresented; and that their practice is often in violation of their own *principles.* Take one example alone, viz., the use of *Aconite,* (the Homœopathic lancet, as they call it,) in cases of fever and inflammation. We can show, from Dr. Fleming's experiments, detailed in his valuable monograph 'On Aconite,' that this drug is a powerful and direct *sedative* on the nervous, the arterial, and the muscular systems. It has the same effects on the body as *bleeding* by the *lancet,* and yet this is the favourite homœopathic medicine in fevers and inflammations. We shall be able to show that in a case of lock-jaw or tetanus, the real homœopathic medicine, viz., strychnine, utterly fails, while the allopathic remedy, *aconite,* quite succeeds. The homœopaths themselves are at downright *loggerheads* respecting this valuable medicine. Mr. Everest, a zealous homœopath, and the friend of Hahnemann, says that a true application of the doctrine of homœopathy "excludes the use of aconite in almost every case in which it is now employed by homœopaths." And yet Dr. Sharp affirms that it is "a most valuable remedy in simple and inflammatory fever. It must entirely banish the use of the lancet, the leech, and the blister in such cases." "In its relation to inflammatory fever it stands unrivalled." (Tracts, No. 10, pp. 12, 13.) This opinion is nearly correct, but this valuable medicine acts *allopathically* in fever and inflammation, and not *homœopathically.* Herein consists Dr. Sharp's curious mistake. The medicine has *the* *same effect as bleeding with the lancet*, or with leeches, which he will find amply proved by Dr. Fleming's experiments in his work on aconite.*

The homœopathist gives his medicine in what are called "dilutions," and Hahnemann and his followers, up to a very recent date, have continued to give the medicines in this diluted form: so that many of their (what are called) facts are founded entirely on the effects of medicine in this form. It is of no use in some of the modern homœopaths renouncing the system of small doses, now that its absurdity has been exposed; most of their *facts* (so called) are founded on this small-dose system. Let us attempt to explain what this is. Each drop of a tincture—laudanum for example, or each grain—opium for example, is diluted with 99 parts of water, alcohol, or white sugar of milk. One drop is taken out of this first dilution, and mixed with other 99 drops of water or spirit; a drop out of this is called the second dilution, and so on up to the 30th dilution. Some homœopathists, even now-a-days, depend on the 30th dilution, and others on the 3rd or 6th dilution. But we believe that all depend, more or less, on these dilutions. Now let us attempt to explain the effect of diluting a drop of laudanum or tincture of aconite, or grain of belladonna in this way.

Let a drop (A) be put into a bottle (No. 1), and 99 drops of water be added. Now take out a drop (B) which will be the 100th part of A. Put B into another bottle (No. 2), and add other 99 drops of water. A drop (C) taken out of this will be the 100th part of B. B was the 100th part of A, so that C is the 100th part of the 100th part of the original drop of laudanum. The 100th of 100th is a simple sum in arithmetic—

100 multiplied by 100 is equal to 10,000

So that C is the 10,000th part of A. Put the drop C into another bottle (No. 3), and add 99 drops of water. A drop (D) taken out of this bottle, (No. 3,) will be the 100th part of C, which was the 10,000th part of the original drop A: so that D will be the 100th part of the 10,000th part of the original drop A; i.e.,

100 × 10,000 = 1,000,000th

part of the original drop A. Put the drop (D) into another bottle, (No. 4), and add 99 drops of water. Now take out a drop (E), which will be the 100th part of D. Now D was the 1,000,000th part of the original drop, and E is the 100th part of D; i.e.,

100 × 1,000,000 = 100,000,000th

of the original drop of laudanum. We have yet only got to the fourth homœopathic dilution; but these dilutions are carried through thirty bottles in order to procure the 30th dilution, which Hahnemann stated to be about the best strength of the medicine, until perhaps the last few years of his life, when he would only allow his patients to *smell* at the medicine.

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* Dr. Fleming on Aconite, pp. 26, 27, 30.

It will be seen that each dilution of *each drop* is the 100th part of the previous one, or, in other words, that *each drop* of each dilution must have 100 drops of water added to it; so that each dilution is properly signified by adding *two ciphers* to the previous one: so that the tenth dilution would be the 100,000,000,000,000,000th part of the original drop of laudanum A.

This seems almost incredible, and it is still more incredible that even some of the most recent writers on homœopathy should still maintain that this fraction of the original drop will have an appreciable effect on the human body.

In order to convince our readers that our calculation is correct, let us do the sum in another way, instead of by fractions.

Instead of using several bottles, let us use one large one—the larger the better—a large tub will do for a short time. Instead of taking a drop out of each dilution, let us go on diluting till we have made the drop of laudanum of the proper strength, and then give the dose to the patient. We will use ciphers, instead of 99 in figures, as this will suit our purpose of explanation better.

Take	1	drop of laudanum.
Add	99	drops of water.
Total	100	first dilution.

Add 100 drops of water to *each* of the above hundred drops. To do this you must multiply *every drop* by 100: an easier way is to multiply the whole 100 drops by 100 drops.

$$\begin{array}{r l} 100 & \\ 100 & \\ \hline 10{,}000 & \text{second dilution.} \end{array}$$

These 10,000 drops only contain the one original drop of laudanum: no more laudanum has been added. *Each* of these 10,000 drops must now be diluted with 100 drops more of water.

$$\begin{array}{r l} 10{,}000 & \\ 100 & \\ \hline 1{,}000{,}000 & \text{third dilution.} \end{array}$$

This is equal to 104 pints. We have now got one million of drops of water, with only one drop of laudanum. Next add 100 drops to each drop of the above—

$$\begin{array}{rl} 1{,}000{,}000 & \\ 100 & \\ \hline 100{,}000{,}000 & \text{fourth dilution.} \end{array}$$

You have now got one hundred millions of drops of water in the tub, with only one drop of laudanum; you must, however, banish the tub altogether, for it will be useless. Now add 100 drops of water to each of the above.

$$\begin{array}{rl} 100{,}000{,}000 & \\ 100 & \\ \hline 10{,}000{,}000{,}000 & \text{fifth dilution.} \end{array}$$

You have now got ten thousand millions of drops, with one drop of laudanum. Now add another 100 drops to each of these

$$\begin{array}{rl} 10{,}000{,}000{,}000 & \\ 100 & \\ \hline 1{,}000{,}000{,}000{,}000 & \text{sixth dilution.} \end{array}$$

We have as yet only got to the sixth dilution, with only a single drop of laudanum in the whole. The 6th dilution contains 51,000 tons of water, with its drop of laudanum. If you go on to the ninth dilution, you will have drops equal to a lake of 250 square miles of surface, and 50 fathoms deep, *with one drop of laudanum in it.* Now let the patient take one or two drops *out of this lake*, and watch the effect on any disease in his body!

If he think fit to dilute the drop of laudanum, or grain of aconite, to the twelfth dilution, he will have to do it in a sea six times the size of the Mediterranean; or to the fifteenth dilution, in all the oceans of the world; or if he wishes to go to the twenty-fourth dilution, he will have water sufficient to make 140 masses, each filling a sphere extending from limit to limit of the orbit of the planet of Neptune. What would be thought of a physician if he were seen to throw a grain of opium, or aconite, or belladonna, into the sea, and, after waiting a week or two in hopes of its being mixed with the whole Atlantic and Pacific oceans, he were to be seen taking a few drops out and giving them to a patient in a serious disease? The patient would naturally ask, "How can this act upon me?" And the physician might say, "Never mind thinking of that, you will recover from your disease: I put the medicine into the Atlantic; you cannot perceive it, but it is certainly *there*, and the few drops which I have given you must contain *some* of it; and as you will recover, we may fairly attribute the good results to the medicine. There are many other things in nature which we cannot understand." This may seem an exaggeration, but it is not so. The thirtieth homœopathic dilution of a grain of opium must have *sixty ciphers* to describe it. 1,000,000,000,000,000,000,000,000,000,000 is only the fifteenth dilution of a single grain of medicine; and yet numerous cases are related by the homœopaths which are said to have been cured by medicines mixed up in this way!

Even Dr. Sharp, one of the most talented of their writers, in one of his homœopathic pamphlets, says, "I think it well to mention, that the dilution of the medicines I have most frequently used is the third, in which the grain or drop is divided into a million of parts. I have often used the second (the 10,000th part), and sometimes the first (the 100th part of a grain.) I have often also used the fourth, fifth, sixth, and twelfth, and I have seen beneficial effects follow the administration of the eighteenth and thirtieth. Further than this, I have not gone; and I do not hold myself committed to anything beyond my own observations and experience." (Tracts, No. 4, p. 22.) So that this gentleman has seen good effects follow a grain or drop of medicine diluted, as it were, in the Atlantic ocean, and a few drops taken out and given to the patient.

In these Homœopathic Tracts, this gentleman publishes numerous cures performed by him (but not so numerous as those cured by Morrison's pills), and begs us to consider them as *facts.* What would be thought of a gentleman, who, amongst other things, might state that he could not only distinctly *see* but *hear* people *talk* in the moon? And yet this would not be nearly so wonderful as the *fact*, that a drop or grain of medicine mixed with 1,000,000,000,000,000,000,000,000,000,000,000,000,000,000,000,000,000,000,000,000 drops of water, more than equal to all the oceans of this world together, will do good in disease. If you believe his *facts*, with respect to what he does assert, you are bound to believe him if he asserted that he could talk with people in the *moon.* Both would depend on his own assertions. You would not rudely contradict him, but would courteously smile at him, and bid him "good morning."

There is nothing difficult, as Dr. Sharp says in arriving at the *decillionth part of a drop* if you adopt the fractional method; but this does not at all alter the difficulty. Dr. Sharp says, "It can be shewn that nothing is more easy. Suppose we take thirty new and clean half-ounce bottles, and place them in a row, and put corks in them, and mark the corks with the numbers from one to thirty; and put into No. 1 ninety-eight drops of alcohol, and into each of the remaining bottles ninety-nine drops of alcohol; and put into No. 1 two drops of the 'Mother tincture' of any liquid medicine, (which consists of the juice of the plant and alcohol in equal parts,) and shake this bottle well; put one drop of this first dilution into the bottle marked No. 2, and shake it well; and put one drop of No. 2 into No. 3, and shake it; and proceed in the same manner through the thirty bottles.

By this time we shall have divided the original drop of the medicine, so that the thirtieth dilution contains a decillionth part of it. This proceeding will not have occupied an hour, and the quantity of alcohol consumed will have been about *six ounces*, instead of the oceans of spirit required according to the calculations of mathematicians and doctors." (Tract No. 8, p. 14.)

The ease with which this is done does not diminish the absurdity. We still find a drop out of the thirtieth dilution to be the 1,000,000 000,000,000,000,000,000,000,000,000,000,000,000,000,000,000,000, 000,000th part of the original drop of the "mother tincture." No more of the "mother tincture" has been added, and neither Dr. Sharp, nor any other man, can assert that all the oceans of this world put together contain so many drops as the above figures represent, calculating 60 minims to one drachm or teaspoonful.

Dr. Sharp himself acknowledges, that a drop out of the last bottle is a decillionth part of the original drop. A decillion is represented by 1 with 60 ciphers. If we are wrong, we are subject to correction ; if right, let every one acknowledge that it is an absurdity. We dont use this word ill-naturedly, but we have no other word to substitute.

We know of only three ways of ascertaining what the decillionth part of a drop of laudanum is: 1st, you may divide the drop or grain into a decillion separate parts, and then take one of these parts out. But it is obvious that with the drop of laudanum, or grain of gold, this would be impossible ; so that yon are obliged, 2ndly, to add first a decillion drops of water to the original drop of laudanum. When mixed, take a drop out which will be the decillionth part of the original drop ; or, 3rdly, you can adopt the fractional method as the homœopathists do ; but the result will be the same in all the cases. A single drop of laudanum put into the Atlantic ocean remains there ; take a drop out and it will be a *fractional* part of the original drop. You cannot deny that the drop is *in* the ocean, nor can you assert that the drop you take out does *not* contain *some* of the original drop of laudanum. Some people would still depend on the efficacy of the drop taken out. Would they depend on the decillionth of a sovereign or grain of gold to purchase an article ? We suspect that the whole of our earth does not contain nearly a decillion of grains of substance. How much of the sovereign would remain in each grain of earth after the two had been well mixed together ! Yet some people believe that it would be perceptible and even efficacious !

We are not aware but that we have stated the case fairly. We leave the public to draw the conclusions, as we desire to make no ill-natured remarks. It is, however, on the effects of medicines given in these different dilutions that homœopathists have chiefly relied. Let us now examine some of the effects of medicines given by homœopathists. We must, however, state, that the greatest diversity of opinion prevails amongst homœopaths respecting some of the opinions of Hahnemann, the founder of the sect. Dr. Dudgeon writes thus of the *Organon* of Hahnemann: "The immortal work that contains the full exposition of the principles of his doctrine in their most perfect and matured state, needs not the recommendation of overstrained eulogy. *Perfect and complete in itself, it leaves no point of doctrine unexplained, no technical detail untouched, no adverse argument unanswered.*" Dr. Sharp, of Rugby, acknowledges that had he read Hahnemann's works *before* practising homœopathy, he "never should have been induced to begin it." Of Hahnemann's writings he acknowledges that "They are so filled with unproved assertions, illogical arguments, fanciful speculations, and obvious contradictions, as to render them exceedingly distasteful writings."* When their best writers thus disagree, where are we to go for the true exposition of the principles and practice of this sect?

A great many of the so-called data, or facts, illustrating the effects of remedies in disease, have been collected from witnessing their effects in healthy persons. Hahnemann instituted a series of experiments with this view. We are indebted to Dr. Simpson, of Edinburgh, for the following explanation:—

In these experiments or "provings," as they are termed, upon drugs, the immense number of the symptoms stated to be produced in the human body by one drug, is proof itself that the medicament was not the cause of these symptoms. For instance, 1090 symptoms are recorded as the effects of some doses of oyster-shell; 1242 as the effects of the ink of the cuttle fish; 1143 as the effects of china (quinine;) 930 distinct symptoms are recorded as produced by doses of common charcoal, a substance which is quite insoluble and inert in doses of drachms, but which Hahnemann alleges he *makes* medicinal by his triturations. And the specific effects of the various drugs upon the constitution, are averred to last for long periods. Charcoal, colocynth, and alum produce symptoms for 40 days; and Jahr describes, indeed, above 50 drugs, the effects of which continue for a month or longer, the alleged effects during that time being, as might well be expected, very contradictory. Thus opium, belladonna, cannabis, phosphorus, lead, &c., and various other homœopathic drugs, have entered under the proved effects of each the power of producing diarrhœa and the power of producing the opposite state of constipation. Vegetable charcoal, animal oil, berberis, cantharis, &c., produce both drowsiness and sleeplessness. Belladonna, pulsatilla, nux vomica, &c. &c., produce both want of appetite and hunger, or excess of appetite; and so on with various other symptoms and various other remedies. Under the very same remedy the homœopathists thus enter sometimes long and contradictory series of symptoms. Thus, for example, according to Jahr, doses of oyster-shell *(calcarea carbonica)* cause both "quotidian fever towards two o'clock in the afternoon," and "tertian fever in the evening;" doses of this same drug cause both dulness in the sense of smell, and exceeding sensibility in the sense of smell; both "dry coryza" and "fluid coryza;" both paleness and redness of the face; both hollowness and puffiness of it; both dryness of the mouth and salivation; both hunger and distaste for food; both sensations of burning and sensations of cold in the abdomen, &c. &c. &c.* This superabundance of symptoms, and even of the most opposite symptoms, under almost every "proved" medicine, has one result,—viz., that when any one drug produces (as they allege many can do), 200, 500, or 1000 symptoms, it is easy (by a piece of self-deceiving casuistry on the part of those who favour homœopathy) to allege that they can find the *counterpart* symptoms or *similia* of almost every disease, in any remedy which is known. by the experience of ordinary physicians, to be useful in the treatment of that disease. For instance, if oyster-shell were a cure for 40 or 50 diseases, could they not easily find the principal counterpart symptoms or *similia* of these 40 or 50 diseases among the alleged 1000 effects or symptoms which the "provings" of these drugs are asserted by them to have produced? I doubt if all the known symptoms of all diseases, as laid down in our works of symptomatology, amount to above a thousand in all; and the so-called "proved" effects of many of the drugs used by the homœopathists, particularly of their so-called polychrest drugs, as chalk, silex, charcoal, aconite, pulsatilla, sulphur, &c. &c., could easily be so arranged as to mimic more or less completely most diseases of the human frame. In all this, however, homœopathic practitioners pursue a system of similitudes far more imaginary than real; and one calculated, by a spurious mode of reasoning only, to satisfy themselves of the existence of the fancied similitude of the effects of the drug used to the disease against which it is used.

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* Dr. Sharp's preface to his Homœopathic Tract, No. 1.

Hahnemann and his disciples maintain, as a general principle and tenet, that we should and must derive our knowledge of the special medicinal symptoms, or "artificial diseases" produced by each particular drug, from experiments with it on the healthy human body. We have already had occasion to notice, that the medicinal effects of various important medicines, as iodine, kousso, male-shield-fern. &c., were not, and could not, be ascertained by experiments upon healthy individuals, but only by experiments upon the sick. The general therapeutic effects, however, of some drugs certainly could be, and have been, ascertained from their employment by healthy persons, as emetics, diuretics, purgatives, &c. But in order that such "provings" and experiments on the healthy, as the homœopathists speak of, could be of any practical value in the homœopathic mode of treatment, it would be necessary also to ascertain, what Hahnemann and his followers have forgotten to ascertain, that the same drug produces the same symptoms, not only in all different individuals to whom it is exhibited in practice, but also in the same individual, equally in the state of health and in different states of diseases. Often we see the same drug, or even the same article of diet, produce opposite effects in health and in illness. The kind of food which was safe and grateful to the patient when well, will frequently, if forced upon the same patient when sick, produce nothing but loathing and nausea, or perhaps indigestion and fever. Opium, which in the state of health, usually produces sleep, will in some diseased states, as delirium tremens, fail, as a general law, to act so in its ordinary doses. Digitalis, squill, spirit of nitrous ether, and other drugs which freely act as diuretics in the state of health, will fail entirely to do so in some states of disease and dropsy. Senna, jalap, sulphate of magnesia, and medicines which act as purgatives upon man in health, often fail to have any such effects when colic and ileus are present; and, on the other hand, would have, in all probability, too great and dangerous a purgative effect in phthisis and some other forms of disease. According to the homœopathic creed, "remedies" (observes Dr. Bushnan) can only cure those symptoms which are similar to their effects on the healthy body. They cure them by substituting artificial symptoms for the morbid symptoms. Such is the homœopathic doctrine. Again, cases of disease are to be regarded as individualities, that is to say, made up of the particular symptoms which exist at the time of observation. Now, as medicines can only cure such symptoms as are similar to *their* physiological effects, it follows that the effects of the medicine on the individual must be similar to the symptoms of his disease, otherwise no cure can ensue. But medicines produce different effects on different individuals. Hence, in order to be certain that the medicine we employ is a proper remedy, we must be certain that it will produce such and such effects—similar to those of the disease—in a given case of malady, and on a given individual. This can only be ascertained by trying the medicinal substances on the individual himself; and hence it follows, that to practise homœopathy in a logical manner, every one should undergo *two courses* of medicine—the first to ascertain what effects the medicine will produce on the individual in a state of health; the second, in applying these experiments at the sick bed side to cure him."

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* See Jahr's "Manual of Homœopathic Medicine," (London 1847), under these different heads.

The "proved" symptoms of particular drugs, form the grand and "invaluable" *data* by which the homœopathic practitioner judges of the applicability of his drugs to the removal of the special diseases, or rather symptoms of disease, which he undertakes to cure; and this constitutes the data by which he attempts to select the infinitesimal dose of the proper remedy from his medicine box. These "provings," or the supposititious symptoms obtained by these provings, were essential and necessary before the principle of homœopathy could be applied in practice; and on the accuracy and importance of them, the application of homœopathy, as a system of medicine, altogether and entirely depends. But of what value are these provings? Are the symptoms supposed to be elicited by them, as laid down in homœopathic works on therapeutics, to be looked upon as the true and genuine effects of the drugs swallowed, or are they mere "imaginings" on the part of the individuals experimented upon ?—Are these alleged symptoms, in the main, actually facts, or fancies alone? To show the probability or improbability of this, the best course is, perhaps, to quote from one or two of the principal and most modern homœopathic authorities on the subject, the alleged symptoms said to be produced by particular substances or drugs. To show the nature of the special symptoms, alleged to be excited by special medicines, let me adduce, in the way of illustration, the medicinal effects or provings of one or two substances in pretty general use. I shall select first, for this purpose, the effects or symptoms which the homœopathists allege to be produced by doses of common *House-Salt*,—a substance which the whole world of mankind is daily employing, and which Jahr, in his well-known work on homœopathic medicines and materia medica, states to possess properties which indicate its applicability as a medicament in some twenty or thirty different affections.

Common HOUSE or TABLE SALT (*Natrum Muriaticum*, as Jahr terms it), when proved upon a healthy person, can cause above *four hundred and fifty* symptoms, and, consequently, is capable on the homœopathic principle, of curing many of these symptoms when they occur similarly in different states of disease. According to Jahr, House-salt is usually employed in doses of the 20th or 30th dilution, or, in other words, in doses of the quadrillionth or decillionth of a grain ; and the duration of a dose of its effects lasts, in chronic affections, from forty to fifty days. He describes the symptoms supposed to be produced in man by doses of House-salt and of other drugs under the several heads of "General Symptoms," and symptoms observed in the "Skin," "Sleep," "Fever," "Head," "Eyes," "Ears," "Nose," &c., &c. The mere enumeration of the symptoms produced in these various parts by House-salt, occupies about six pages in Jahr's work. To cite them all would, consequently occupy more space than we can bestow upon them. But the following is an abridged list of some of the principal symptoms which this drug is averred to be capable of producing, and hence also of curing.

Symptoms produced by Common House-Salt.

"Rigidity of all the joints, which crack when they are moved." "Tendency to experience dislocation, and to strain the back." "Paralysis." "Swelling of the glands." "Bad effects of a disappointment." "Great relaxation of all the physical and moral powers after fatigue." "Great drowsiness during the day." "Retarded sleep and sleeplessness at night, with ineffectual efforts to go to sleep." "Agitated sleep, full of vivid and lascivious dreams." "Frightful dreams of quarrels, murders, fire, thieves, &c." "At night pains in the back, quivering, apparently of the nerves, frequent emission of urine, headache, colic, asthmatic sufferings, and great anguish of body." "Typhus fever, with debility." "Anguish, sometimes during a storm, but especially at night." "Hatred to persons who have formerly given offence." "Awkwardness." "Painful confusion in the head, vertigo, with shocks in the head, and dizziness." "Sensation on moving the head as if the brain wavered." "Tendency of the head to become easily chilled." "Spasmodic closing of the eyelids, especially in the morning, in the evening (during the twilight), and at night." "Tinkling, ringing, rumbling, and humming in the ears." "Numbness and insensibility of one side of the nose." "Boring in the bones of the nose."—*Jahr's Manual of Homœopathic Medicine*, vol. i. p. 386, *et seq.*

Let us take another example. CARBONATE OF LIME or CHALK, (*Calcarea Carbonica*), exists in most vegetables, and is contained in greater or less quantity—but in doses larger than the Hahnemannic—in almost every water which man drinks. It is found, (says Dr. Pereira), even in the purest of waters, viz., in rain water. Carbonate of Lime is, according to Jahr, usually employed in the dose of a decillionth, or in the 30th dilution; and the duration of its effects is fifty days in chronic affections. According to the provings of the homœopathists, Carbonate of Lime is capable of producing above *one thousand* symptoms. Out of this immense number of effects, we select the following as specimens of the symptoms it may cause, and hence may cure.

Symptoms produced by Chalk or Carbonate of Lime.

"Shootings and drawing pains in the limbs, chiefly at night, or in summer, and in change of weather." "Great tendency to strain the back in lifting." "Strong desire to be "magnetised." "Emaciation, without failure of appetite. Great plumpness, and excessive obesity," "On walking in the open air; sadness with tears." "Visible quivering of the skin from head to foot." "Encysted tumours which are renewed and suppurate every month." "Swelling and distortion of the bones." "Flaws in the fingers." "Sleeplessness from activity of mind, or in consequence of voluptuous or frightful images which appear as soon the eyes are shut." "Snoring during sleep." "Dreams frequent, vivid, anxious, fantastic, confused, frightful, and horrible." "Dreams of sick and dead persons." "At night, agitation, asthmatic suffering, anxiety, heat, pains in the stomach, and in the præcordial region, thirst, beatings of the head, toothache, vertigo, headache, fear of losing the reason, and many other sufferings." "Quotidian fever towards two o'clock in the afternoon, with yawning and cough, a desire to lie down at least for three hours, after which the hands become cold." "Tertian fever in the evening." "Disposition to weep, even about trifles." "Vexation and lamentation on account of old offences." "Anxiety and anguish excited by fancies, or frightful stories." "Disposition to take alarm; Apprehensions." "Fear of being ill or unfortunate; of sad accidents, of losing the reason; of being infected by contagious diseases." "Discouragement and fear of death." "Excessive ill-humour. and mischievous inclination; with obstinacy, and a disposition to take everything in bad part." "Disgust and aversion to all labour whatever." "Delirium, with visions of fires, murders, rats and mice, &c." —*Jahr's Manual of Homœopathic Medicine*, vol. i., p. 108, *et seq.*

Further, it cannot be argued, and must not be supposed, that the work of Jahr, from which I have quoted the above, is not a work of the very highest authority on homœopathy; for it is cited everywhere by homœopathists themselves, as one of their most standard productions on the Materia Medica; and two editions of a translation of it into English by Dr. Curie have been published in London, and others in America. It is from the second of these London editions that we have quoted the above extracts.

Lately, between twenty and thirty of the principal homœopathic physicians in Great Britain, including Dr. Black, Dr. Drysdale, Dr. Madden, Dr. Gully of Malvern, Dr. Henderson of Edinburgh, the the Rev. T. Wright of Coldstream, &c., have instituted "THE HAHNEMANN PUBLISHING SOCIETY," "for the purpose of publishing scientific and practical works on homœopathy." In 1850, they published their first volume, viz., a "Pathogenetic Cyclopædia," or "Systematic arrangement and analysis of the Homœopathic Materia Medica," by Dr. Dudgeon of London. This volume contains only the symptoms of "the Disposition, Mind, and Head." I shall select a specimen from this volume, published under such high authorities, to show that the symptoms there described are, in respect of folly, of the same type with those of Jahr. At page 168 to 170 (to take these pages as an example), there is given a series of Delusions, which are capable of being produced, and which it is alleged have been produced, in the provings of certain drugs. I shall select a few of these as specimens:—

"Delusion that he is flying" (produced by CAMPHOR). "Delusion that he is riding an ox" (produced by BELLADONNA). "Delusion that he is a hunter" (produced by VERATRUM). "Delusion that he is a commanding officer" (effect of a dose of COPPER). "Delusion that he gives the word of command" (effect of BELLADONNA). "Delusion that he has a large business" (effect of PHOSPHORUS). "Delusion that he possesses fine clothes" (effect of SULPHUR). "Delusion that he is a goose" (effect of CONIUM). "Delusion that he is a child" (effect of CICUTA). "Delusion that he has old chairs to mend" (effect of COPPER). "Delusion that he has greens for sale" (effect of COPPER). "Delusion that he is driving sheep" (symptom of ACONITE). "Delusion that his head is larger" (symptom of ZINC)

"Delusion that his head is transparent, and that his nose is transparent" (effects of BELLADONNA). "Delusion that his stomach is devoured" (effect of SABADILLA). "Delusion that his legs are cut off" (effect of BARYTA). "Delusion that his fingers and toes are cut off" (symptom of MUSK). "Delusion that his feet are in his brain" (effect of AMPHISBŒNA), "Delusion that he is killed, roasted, and being eaten" (a symptom of STRAMONIUM). "Delusion that he is about to be married" (symptom of HENBANE). "Delusion that he is pursued by evil spirits, and that a dog is biting him" (effect of STRAMONIUM). "Delusion that thieves are in the house" (symptom of ARSENIC). "Delusion that men are swine" (a symptom of HENBANE). "Imaginary vision of cats" (an effect of ÆTHUSA). "Imaginary vision of rabbits" (effect of STRAMONIUM). "Pretending to crack nuts" (symptom of HENBANE). "Pretending to count money" (symptom of BELLADONNA). "Pretending to drive away peacocks" (a symptom of HYOSCYAMUS). "Eats his shoes" (an effect of VERATRUM). "Tries to climb up the stove" (effect of HENBANE). "Dancing in the Churchyard" (a symptom of STRAMONIUM). "Inclination to pull people's noses" (a symptom produced by MERCURY,) &c., &c.

It is surely unnecessary to dwell further on these "provings," the making of which is, according to Hahnemann, a portion of the homœopathic system that "is of all others THE MOST IMPORTANT; which is to form the basis of the only true healing art (of homœopathy); and which demands the greatest moral certainty and trustworthiness." (*Organon*, p. 228). For as he again observes (p. 215), "the weal of all future generations of mankind, and the exactitude of the homœopathic medical art," depend upon the accuracy of these provings. And I willingly leave every unprejudiced reader to judge for himself of their actual accuracy, and of the consequent amount of reliance that can possibly be placed upon a system of medicine, which rests and relies upon the truth of these imaginary "proved" effects of drugs as one of its most essential and vital foundations."—*Dr. Simpson's work on Homœopathy*,* pp. 70, 77, 259, 263.

We would here simply ask the candid reader, whether he ever thought it possible in this day of knowledge and civilization, that such things could be written and be believed by numerous disciples, and even by educated medical men? We will make no comment, except that these *provings* of medicine are said to be amongst those things which prove the truth of the principles of homœopathy. An enthusiastic philosopher once constructed a very satisfactory theory on some subject or other, and was not a little proud of it. "But the facts, my dear fellow," said his friend, "the facts do not agree with your theory." "Dont they?" replied the philosopher, shrugging his shoulders, "then so much the worse for the facts."†

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* We recommend all practitioners to procure this work for themselves.

† Mr. Brodribb's pamphlet on Homœopathy.

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